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TRADE, ENVIRONMENT AND DEVELOPMENT
ASPECTS OF ESTABLISHING AND OPERATING ECO-LABELLING PROGRAMMES

Report by the UNCTAD secretariat

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CONTENTS

		Paragraphs
Executive summary		1- 7
I.	**TRADE EFFECTS OF ECO-LABELLING**	8- 15
	A. Product coverage of eco-labelling schemes	11
	B. Possible discriminatory effects	12
	C. Compliance costs and export competitiveness of developing-country producers	13
	D. Eco-labelling and international trade rules	14- 15
II.	**ENVIRONMENTAL EFFECTS OF ECO-LABELLING**	16- 40
	A. Introduction	16- 20
	B. Setting eco-labelling criteria	21- 29
	1. PPMs, imported products and the consumer	24- 26
	2. Eco-labelling criteria addressing global environmental problems	27- 29
	C. Market shares of eco-labelled products	30- 35
	1. Consumer preferences for eco-labelled products	31
	2. Government procurement	32
	3. Producers' response to eco-labelling	33- 35
	D. Environmental effects on developing countries	36- 40
	1. Effects of eco-labelling programme in developed countries	36- 38
	2. Eco-labelling in developing countries	39- 40
III.	**DEVELOPMENTAL ASPECTS OF ECO-LABELLING**	41- 46
	A. The case of small firms	42
	B. The case of the Least Developed Countries (LDCs)	43- 44
	C. Roles for aid agencies	45- 46
IV.	**SECTORAL ISSUES**	47- 58
	A. Pulp and paper	48- 50
	B. Textiles and clothing	51- 53
	C. Footwear	54- 58
V.	**TAKING ACCOUNT OF DEVELOPING COUNTRIES' INTERESTS**	59- 96
	A. Transparency	60- 77
	1. Concepts of transparency	60- 62
	2. Transparency at different stages of the eco-labelling process	63- 69
	3. Market research and other supporting studies	70- 72
	4. Parameters for increased transparency	73- 77
	B. Guiding principles	78- 80
	C. Dealing with process-related criteria	81- 87
	1. Exemptions	82
	2. Compliance with local environmental regulations	83- 84
	3. The cradle-to-export border approach	85- 86
	D. Equivalency	87
	E. Mutual recognition	88- 90
	F. Technical assistance	91- 96
VII.	**CONCLUSIONS AND RECOMMENDATIONS**	97-101

Executive Summary

1. In accordance with its terms of reference, the Ad Hoc Working Group on Trade, Environment and Development is, inter alia, examining international cooperation on eco-labelling. The Group initiated its deliberations on the subject at its first session, held from 28 November to 2 December 1994, focusing on (i) a comparative analysis of current and planned schemes and a discussion of concepts such as mutual recognition and equivalencies; and (ii) an examination of the possibilities for taking into account the interests of developing countries in the elaboration of eco-labelling criteria. Discussions were aided by the secretariat's report TD/B/WG.6/2 on "Eco-labelling and market opportunities for environmentally friendly products".[1] The Working Group decided to continue its deliberations at its second session with an examination of the "trade, environment and development aspects of establishing and operating eco-labelling programmes".

2. Building on the analysis presented in report TD/B/WG.6/2 and the discussions at the first session, Chapter I examines the trade effects of eco-labelling. The point is made that when eco-labelling is an important factor in the marketplace, its effects may be similar to those of regulatory measures. The trade effects then depend on the product coverage of eco-labelling programmes, compliance costs and possible discriminatory effects against foreign producers. In some cases, eco-labelling while not affecting the traded products themselves, may nevertheless affect the trade in inputs.

3. The environmental effects of eco-labelling (Chapter II) depend on the relevance and significance of eco-labelling criteria as well as the quantity of eco-labelled products. Eco-labelling can only be an effective marketing instrument for environmental purposes if there is public awareness of eco-labelling programmes and eco-labelled products and producers are interested in making a significant volume of eco-labelled products available in the marketplace. Experience shows that the success of eco-labelling programmes in terms of number of products using eco-labels and market shares of eco-labelled products is mixed. As far as eco-labelling in developing countries is concerned, since the domestic market for environment-friendly products tends to be small, eco-labels will only have significant effects if adjustments made to qualify for the label also contribute to increased export competitiveness.

4. With regard to the developmental effects of eco-labelling (Chapter III), the major concern is that adverse effects of eco-labelling on the exports of developing countries are likely to have some negative impact on their development process. Complying with eco-labelling criteria may be costly for firms in developing countries, in particular firms in least developed countries and small and for medium-sized enterprises. In the selection of product categories for eco-labelling and in the determination of criteria it is therefore important to consider the effects of eco-labelling on developing countries, in particular the least developed among them. Eco-labelling is not meant to be and cannot be primarily an instrument of development of developing countries.

5. Chapter IV examines a number of the issues raised in the report on the basis of a number of case studies covering three sectors of export interest to developing countries: paper, textiles and clothing and footwear. In all these sectors, whether or not a product qualifies for an eco-label depends to a large extent on the materials used, and many of the corresponding criteria are related to processes and production methods (PPMs). For example, eco-labelling criteria for shoes include process-related criteria related to leather tanning. Most sectoral studies point out that meeting the eco-criteria for certain products would have significant effects on competitiveness, particularly for small firms.

6. Chapter V suggests ways and means to take account of developing countries' interests in eco-labelling. It further elaborates proposals made in report TD/B/WG.6/2, in particular with regard to issues such as transparency and the application of PPM-related criteria to imported products, taking into account

the deliberations at the first session of the working group as well as additional analysis by the secretariat. The point is made that while eco-labelling may be a fairly transparent process at the domestic level, it appears to lack transparency when eco-labelling involves products which are of substantial export interest to foreign producers. Chapter V.A examines possible parameters which could assist eco-labelling bodies in identifying product categories of special export interest to developing countries. The point is made that full transparency would imply that in addition to the manufacturers of products subject to eco-labelling the suppliers of materials also be involved in the process of establishing criteria.

7. Progress has been made in ISO in designing draft guiding principles aimed at ensuring the credibility and non-discriminatory nature of eco-labelling. A number of questions, however, continue to cause concern, such as the relationship between eco-labelling and the provisions of the multilateral trading system, in particular the Agreement on Technical Barriers to Trade (an issue included in the terms of reference of the WTO Committee on Trade and Environment); the transaction costs arising from the coexistence of different eco-labelling schemes; and the application of PPM-related criteria to imported products. It has also been pointed out in the report that when a product is mostly imported, e.g textiles and footwear, devising eco-labelling for such products should be treated with caution. Particular care should be exercised if the criteria for such products are PPM-based. Concepts such as mutual recognition and "equivalency" need further analysis.

I. TRADE EFFECTS OF ECO-LABELLING

8. At the time of drafting this report, no developing-country producer was using a "type-I" eco-label (eco-labels awarded by a third party for products which meet preset environmental criteria)[2] to market his products in any OECD country. Although data on refused applications are not available, it is likely that developing country producers have not yet applied for such labels. Producers in developing countries may nevertheless have been affected in two ways. First, eco-labelling may have reduced the competitiveness of unlabelled products in a particular market. It has been reported, for example, that Norway's imports of fine paper originating in Brazil declined significantly after the introduction of an eco-label[3]. Second, eco-labelling may have had effects on suppliers of materials used to manufacture eco-labelled products. It is difficult to know whether such effects have already taken place. However, the major concern of Brazilian exporters of pulp with a recently introduced European Union eco-label on tissue paper referred precisely to such indirect effects. And eco-labelling in footwear could have effects on leather tanneries in developing countries.[4]

9. The possible trade effects of eco-labelling have been analysed in detail in document TD/B/WG.6/2. Eco-labelling promotes product differentiation on the basis of environmental quality and may thus have effects on competitiveness. Since eco-labelling is voluntary, exporting firms have the option of either applying for the label (focusing competitiveness on non-price factors) or to continue selling unlabelled products (focusing competitiveness on price factors). However, when eco-labelling is an important factor in the marketplace, its effects may be similar to those of mandatory regulations. In such cases eco-labelling may involve market access questions, in particular when it is perceived to discriminate against foreign producers.

10. Eco-labelling in the developed countries might allow developing country producers to obtain price premiums which may not be available in their home market. A key question is whether targeting a potential market niche for eco-labelled products could allow firms to recover -through price premiums and/or increased market shares- the costs involved in adjusting their production processes and in securing materials that comply with the eco-labelling criteria. As will be pointed out in Chapter II, at times consumers may not respond to eco-labelling and price premiums may be difficult to obtain. It follows that incurring additional costs with a view to obtaining eco-labels may involve a certain economic risk.

A. Product coverage of eco-labelling schemes

11. Eco-labelling programmes cover a variety of product categories. Some of these categories, such as paper products, detergents, batteries, paints and certain household appliances, are covered by various programmes. Many product categories are selected on the basis of their relevance at the disposal stage and/or their potential contribution to recycling. There are other reasons why certain product categories may spread across programmes. For example, the success -in terms of producers' response- of eco-labelling in specific product categories, may induce other programmes to include similar product categories. An analysis of the product categories earmarked for eco-labelling also indicates that developing countries are becoming more exposed to the effects of eco-labelling programmes in developed countries, in particular in the European Union. Mainly as a result of the proposed eco-labels for textiles (cotton T-shirts and bed linen) and shoes, as much as 45 per cent of value of imports in product categories earmarked for eco-labelling in the European Union originates in developing countries and China.[5]

B. Possible discriminatory effects

12. Although the criteria for granting labels are the same for domestic and

foreign suppliers, eco-labelling may de facto discriminate against foreign producers. To some extent, difficulties encountered by foreign suppliers in obtaining an eco-label represent the normal disadvantages of the exporter versus the domestic producer. However, certain aspects of eco-labelling, such as the cradle-to-grave approach, add to its potentially discriminatory effects, in particular against producers in developing countries. Possible discriminatory effects can be attributed to a number of factors:

(a) Eco-labelling tends to be based on domestic environmental priorities and technologies in the importing country and may overlook acceptable products and manufacturing processes in the country of production. Eco-labelling criteria often lack flexibility to reflect relevant local environmental conditions and priorities in the country of production;

(b) The definition of product categories, and the determination of criteria and limit values may favour domestic over foreign producers. Eco-labelling criteria may be specified in terms of technology to which domestic firms have easier access;

(c) Eco-labelling may require foreign producers to meet criteria which are not relevant in the country of production.[6] Thus, technologies which have been developed to deal with pollutants which are important in the importing country, but less important in the country of production, would need to be imported if a firm wishes to qualify for a label.[7]

(d) Environmental infrastructures may differ widely across countries (e.g. municipal waste water treatment plants; solid waste treatment plants; recycling stations);[8]

(e) Ensuring supplies of chemicals and other materials which are acceptable for use in eco-labelled products may be difficult for foreign producers, in particular in developing countries. Foreign suppliers of inputs to eco-labelled products may also be discriminated against;

(f) Certain parameters used to calculate the environmental effects of products throughout their life-cycle may be based on information collected in the importing country or countries with comparable environmental conditions, and may overestimate environmental impacts in the country of production. For example, parameters used to estimate the energy used in the manufacturing of products may not reflect the conditions in the country of production.

C. Compliance costs and export competitiveness of developing-country producers

13. Eco-labelling programmes of the developed countries have only recently started to include products of significant export interest to developing countries and products from developing countries have not as yet used type-I eco-labels. Therefore, no empirical data are available on the costs of compliance to developing country producers. However, a number of case studies, carried out by research teams in developing countries under a technical cooperation project sponsored by IDRC, indicate that the costs of adjustment for firms that wish to comply with eco-labelling criteria might be significant. The costs involved in the use of specific chemicals and other raw materials, capital investment, as well as testing and verification would be particularly relevant. Designing and producing a product that complies with eco-criteria may be particularly costly for small-scale producers (see Chapter III). In addition, process-related criteria, which tend to be based on environmental and technological conditions in the importing country, may imply high costs for foreign producers. Other cost

factors are license fees (See also report TD/B/WG.6/2, paragraphs 34-41).

D. Eco-labelling and international trade rules

14. Strengthened international cooperation and increased transparency are of key importance in avoiding or mitigating possible adverse trade effects of eco-labelling. An important question in this context is the relationship of eco-labelling with the WTO, in particular the Agreement on Technical Barriers to Trade (TBT).

15. Contrary to what is often argued, the fact that eco-labelling is a voluntary instrument or is implemented by non-governmental bodies does not by itself mean that eco-labelling would not be covered by the TBT Agreement. Voluntary standards implemented either by central government, local government, non-governmental or regional bodies are in fact covered by the Code of Good Practice for the Preparation, Adoption and Application of Standards (Annex 2 to the TBT Agreement). The use of criteria regarding PPMs which are not related to the (eco-labelled) product may be critical in the context of the relationship between eco-labelling and the WTO rules.

II. ENVIRONMENTAL EFFECTS OF ECO-LABELLING

A. Introduction

16. Concern for the environmental impacts of products has grown in recent years, in particular in the developed countries. Traditionally, product-oriented environmental policies focused on one stage of the product's life cycle, normally the use or disposal stage, and one particular environmental aspect (e.g. a single substance contained in the product). Technical standards and regulations were often the preferred instruments to implement such policies.

17. Product-specific environmental policies are increasingly aimed at promoting patterns of consumption that reduce environmental stress. Agenda 21 recognized that "developed countries should take the lead in achieving sustainable consumption patterns".[9] The purpose of "product policies" is to encourage producers, retailers and consumers to continuously reduce the environmental impacts of products.[10] The scope of product-specific environmental policy-making is widening and increasingly covers multiple environmental aspects, including aspects related to "sustainable development" as well as different stages of the product's life cycle. Product policies aim, for example, at reducing the amount of energy and materials contained in products, minimizing waste, eliminating hazardous substances, promoting reuse and recyclability, and prolonging the time of usage of the product. These policies use a broad mix of instruments, including regulatory measures, market-based instruments, and information-based instruments, many of which are voluntary, such as eco-labelling. Measures which inform and educate the consumer about a product's environmental advantage can create demand pressure that may lead to innovation, thus both complementing and substituting for regulation. Consumer information approaches encourage innovation both by not limiting flexibility in responding to environmental concerns and giving companies an incentive to exceed current standards.[11]

18. Product-oriented policies targeting consumer products receive high priority in a number of developed countries. Consumer preferences for environment-friendly products, the availability of environmental infrastructure and state of the art technologies may facilitate the effective use of product policies aimed at reducing environmental stress. In a number of cases product-specific policies have proven to be successful. For example, in the Netherlands more than 95 per cent of detergents have been phosphate-free since 1990, largely as a result of a covenant.[12] With regard to eco-labelling, in the case of the German Blue Angel programme, it has been reported that a few years after the introduction of eco-labels for oil and gas heating appliances, emissions of sulphur dioxide, carbon monoxide, and nitrogen oxides were reduced by more than 30 per cent and that the energy efficiency of these appliances had improved significantly. Also, after the introduction of an eco-label, the market share of low-solvent paints and varnishes went up from 1 per cent to 50 per cent while the amount of solvents released into the environment were estimated to have been reduced by some 40,000 tons.[13]

19. In developing countries, product policies could be less effective as an environmental policy instrument. This is beacause domestic demand for environment-friendly products is weak, environmental infrastructure is generally poor and there is a large informal sector. Environmental conditions and priorities in developing countries are different from those in developed countries. For example, priorities may have to be given to investment in basic infrastructure.

20. How effective eco-labelling has already been in reducing environmental stress is difficult to know. The UNCTAD secretariat is not aware of any study which has tried to make a systematic assessment of the effects of existing eco-labelling programmes on the environment. What can be said is that the environmental effects of eco-labelling depend largely on the relevance and significance of eco-labelling criteria as well as the market share of eco-

labelled products, which in turn depends on consumer'preferences for eco-labelled products and the responsiveness of producers and suppliers. Thus in order for eco-labelling to be an effective marketing instrument, there must be public awareness of eco-labelling programmes and eco-labelled products, and producers must be interested in making a significant volume of eco-labelled products available in the marketplace.

B. Setting eco-labelling criteria

21. Eco-labelling programmes differ considerably among each other in terms of stringency and coverage of criteria as well as in the use of Life Cycle Analysis (LCA). Credibility of eco-labelling programmes may imply the need to set stringent criteria. However, there may be a trade-off between stringent criteria, which may spur technological innovation, and criteria which are easier to meet, which may help in making eco-labelling more visible.

22. In principle eco-labelling follows a comprehensive, multi-criteria and life cycle approach to ensure that an eco-label informs the consumer about a real reduction of environmental stress and not merely a transfer of impacts across environmental media or stages of the product's life cycle. In practice, however, criteria may refer to only one or some environmental aspects and only part of the product's life cycle. For example, the German Environmental Agency argues that an assessment of most product groups shows that one specific environmental aspect dominates.[14] The Japanese eco-labelling programmes also focus on only one environmental aspect, which is normally related to the use and disposal stages of a product's life cycle (see TD/B/WG.6/2, box 4).

23. LCA may raise conceptual and practical problems, particularly when the product's life cycle involves several countries which may differ significantly in terms of environmental conditions and priorities. This is in particular the case of criteria relating to "upstream" environmental effects such as the extraction of raw materials, as well as Process and Production Methods (PPMs). At the first session of the Working Group, it was felt that eco-labelling systems may have to accept variations in PPM-based criteria across countries in accordance with carrying capacities and social preferences. Moreover, it was stressed that the use of process-related criteria could raise issues of extra-territorial application of the environmental priorities of the importing country[15]. Some suggestions to deal with the PPM issue are made in Chapter V (section C).

1. PPMs, imported products and the consumer

24. To the extent that environmental effects are intrinsically local, the environment of the importing country is not affected by the PPMs used in the other countries: such PPMs only affect the local environment in the country of production. The rationale which is often given for applying PPM-related criteria to imported products is (i) to provide information to consumers who are concerned about the environmental effects of the products they consume, wherever such effects occur, and to safeguard the credibility of the programme; and (ii) to avoid competitive distortions which are alleged to arise if domestic producers were to be forced to comply with more stringent criteria than their foreign competitors in order to obtain the label.

25. One of the objectives of eco-labelling is to provide information to consumers. But an eco-label, as currently constructed, only informs the consumer that a product complies with the criteria and thresholds determined by the eco-labelling programme in the importing country. Where those criteria overlook environmentally acceptable PPMs in the country of production or are inappropriate or irrelevant in the context of local conditions in the producing country, eco-labels fail to provide relevant information to the consumer[16].

26. In addition, the relevant information that a consumer would be interested

in receiving generally refers to ambient environmental quality. It is widely accepted that ambient standards may reflect differences in absorption capacities and "critical loads". Eco-labelling criteria, however, tend to be based on emission or technology standards, which are rather inflexible, and ignore that even if two countries would aim at the same ambient standards, it would be legitimate for countries with relatively more environmental resources and/or relatively lower environmental pressure, to apply less stringent emission standards.[17] The use of specific PPM-related criteria in eco-labelling, as currently constructed, seems to ignore these widely accepted concepts.

2. Eco-labelling criteria addressing global environmental problems

27. A number of the problems outlined in the previous section would in principle not arise in the case where eco-labelling requirements include PPM-related criteria related to global environmental problems. It should be noted, however, that there may be certain disadvantages in including such criteria in eco-labelling. Criteria which are established unilaterally by the eco-labelling programme of the importing country may not take account of internationally-agreed targets set for different groups of countries in the context of Multilateral Environmental Agreements (MEAs). Such targets are negotiated by governments and may vary among groups of countries, taking into account the common but differentiated responsibilities of all countries for global environmental problems.

28. Whereas MEAs tend to set rights and obligations at the country level, eco-labels are granted to products. In one case study the point is made that it might be inappropriate to deny the right to use an eco-label to a particular company, based on uniform eco-labelling criteria of the programme of the importing country, if the country of production complies with internationally agreed targets.[18]

29. In other cases, however, eco-labelling may contribute to achieving internationally-agreed objectives, provided that the eco-labelling criteria are based on an international process. A case in point is eco-labelling in the timber sector. One study found that eco-labelling in timber may assist in re-establishing eroded markets for tropical timber and tropical timber products[19].

C. Market shares of eco-labelled products

30. Setting relevant eco-labelling criteria by itself does not guarantee environmental improvements. Eco-labelling can only have environmental effects to the extent that eco-labelled products gain a significant share of the market. It should also be considered that at times stringent eco-labelling criteria may induce only minor environmental effects because of limitations in supply possibilities. For example, it may be technically difficult to produce significant quantities of "eco-garments" due to the limited supply of organically grown cotton and environment-friendly dyes.

1. Consumer preferences for eco-labelled products

31. Eco-labelling programmes are becoming increasingly known among consumers. For example, opinion polls conducted in 1993 indicate that 53 per cent of the consumers in Japan knew the EcoMark, as compared to 22 per cent in 1990. A survey carried out in Singapore in March 1994 showed that more than half of the population recognized the GreenLabel mark. In Canada, awareness for the national Eco-logo increased to 51 per cent in 1993 from 19 per cent in 1990 and in Norway the recognition of the White Swan increased from 12 per cent in 1992 to 66 per cent in 1994.[20] However, consumer preferences for eco-labelled products as well as their willingness to pay premiums tend to vary widely from product to product. Consumer polls indicate that many consumers declare that they are willing to pay a premium for environment-friendly products. However, there may be discrepancies between expressed willingness and actual purchasing behaviour.

Box 1
Number of product categories and of products under different eco-labelling programmes

February/March 1995

	Product categories for which criteria are established	Eco-labels granted			
		Prod. categ	Manu-facturers	of which foreign	Pro-ducts
Canada	31	15	116	17	1,500
EU	5	1	1	-	8
Germany 1/	81	61	1,058	175	4,353
Japan	65	63	1,039	22	2,322
Netherlands 2/	20	4	10	3	40
Nordic cntrs	31	15	182	19	

1/ Germany: By 2 March 1995, eco-labelling criteria had been established for 81 product categories. Criteria were under development for another 34 product categories.

2/ Netherlands: By 20 February 1995 eco-labels had been granted to four product categories. This number is expected to increase to seven by June 1995.

Source: UNCTAD

2. Government procurement

32. Apart from consumers, institutional buyers, including governments, constitute a potential market for eco-labelled products. The inclusion of environmental considerations in public procurement is encouraged in a number of OECD countries,[21] although in general eco-labelled products are not favoured explicitly.[22] For example, in Canada, the Code of Environmental Stewardship is intended to help federal agencies to incorporate environmental considerations into their practices and operations, including with regard to purchasing goods and services, but the Code is not explicit in its support to Canada's Environmental Choice Programme (ECP). Supply and Services Canada (SSC), the federal government's purchasing authority, buys environment-friendly products, but bases its decisions on commercial considerations. Municipalities may be more explicit in their preference for eco-labelled products. In 1990, the Association of Canadian Cities for Environmentally Sound Strategies (ACCESS), which represents municipalities across Canada, recognized the ECP as the only available mechanism to ensure that products meet environmentally sound standards. As a result, municipal purchasing officers try as far as possible to obtain products that carry the ECP EcoLogo (depending on availability and prices)[23]. In Sweden, several municipalities have autonomously decided that the health and environmental aspects of the products play a key role in their purchasing decisions.

3. Producers' response to eco-labelling

33. Experience shows that it may be difficult to implement eco-labelling

programmes which are successful in terms of producers' response. For example, Canada's Environmental Choice Programme (ECP) has developed criteria for 31 product categories, but eco-labels are being used in only 15 of these categories (see Box 1). And a large part of ECP's licensing revenues were derived from only two product categories: paint and fine paper. ECP has now established an action plan aimed at increasing the presence of eco-labelled products in the marketplace[24].

34. The more successful programmes in terms of number of products using eco-labels are the German "Blue Angel" and the Japanese EcoMark[25]. However, eco-labels are more frequently used in some product categories than in others. For example, approximately half of the eco-labelled products in Germany belong to only a few categories, especially low pollutant coatings, recycled paper products and recycled cardboard products.

35. Producers obtain direct economic benefits from eco-labelling if the use of eco-labels results in increased sales revenues (by increasing market shares and/or obtaining price premiums) in excess of the costs incurred in obtaining the eco-label (the costs of adjustments needed to produce products which qualify for the eco-label, in addition to the costs of testing and fees paid for using the label). Surveys conducted among licensees on the effects of eco-labelling on sales show mixed results. For example, in Canada, a survey conducted in 1993 revealed that 62 per cent of the licensees did not attribute any change in sales to using the EcoLogo, while 33 per cent attributed an increase in sales to the EcoLogo[26]. On the other hand, it appeared that companies which did not use the eco-label had not lost market share. In a survey conducted in Singapore, 15 per cent of the companies interviewed reported increased sales on eco-labelled products[27]. Eco-labels may be used for other purposes, such as establishing a "green image". According to ECP, almost all licensees have renewed their licenses at the end of the three-year term. However, there are also examples of firms which have stopped using eco-labels[28].

D. Environmental effects on developing countries

1. Effects of eco-labelling programmes in developed countries

36. So far, firms in developing countries have not yet used the type-I eco-labels of the eco-labelling programmes in developed countries. Thus, eco-labelling programmes in developed countries have had no direct positive environmental effects on developing countries.

37. In theory, eco-labelling in OECD countries may have positive effects on the environment in developing countries, but such effects will likely be modest. Large firms in developing countries who possess the financial and technological means to invest in environmental improvements may be able to qualify for an eco-label and sell in premium markets. However, small and medium-sized firms tend to have more difficulties in obtaining information and in adjusting to eco-labelling criteria.

38. A key question is whether the required adjustments to qualify for an eco-label in export markets are also appropriate in the context of the economic, technological and environmental conditions in the producing country. Eco-labelling criteria which are objective, understandable and realistic are more likely to provide incentives to developing country producers to design and produce products which comply with these criteria.

2. Eco-labelling in developing countries

39. A number of developing countries and countries in transition have established national eco-labelling programmes (e.g. India, Republic of Korea and Singapore) or are in the process of doing so. As in the case of developed countries, the purpose of such programmes is to contribute to environmental

improvements by providing information to consumers and to encourage producers to shift to more environment-friendly production processes. Eco-labelling and the associated education process may contribute to heightened consumer awareness of environmental issues. However, since the domestic market for eco-labelled products tends to be small, the conservation of export markets and the improvement of export competitiveness are often among the key objectives. In order to be successful, eco-labelling programmes aim at some form of mutual recognition with similar programmes in OECD countries.

40. Experience shows that the establishment of eco-labelling programmes in developing countries may be particularly difficult. The challenge is to establish criteria which are significant and relevant in the context of local environmental and developmental conditions of the country of production, taking into account local bases of raw materials and technologies, while at the same time satisfying the high standards for acceptance in developed country markets. Normally, eco-labelling also requires government funding, at least at an initial stage, to support the selection of product categories, the establishment of eco-labelling criteria and for educational and promotional purposes. The above points to the need for technical assistance in capacity building.

III. DEVELOPMENTAL ASPECTS OF ECO-LABELLING

41. With regard to the developmental effects of eco-labelling, the major concern is that adverse effects of eco-labelling on the exports of developing countries are likely to have some negative impact on their development process.

A. The case of small firms

42. Various studies undertaken under UNCTAD's technical cooperation programme indicate that small and medium-sized enterprises (SMEs) tend to encounter particular difficulties in complying with environmental standards and regulations, including eco-labelling requirements. Some of the reasons are:

(a) SMEs may lack access to information, technologies and capital;

(b) economies of scale factors may render investments unprofitable for SMEs;

(c) small industrial sites may imply lack of space for certain environmental facilities, e.g. waste water treatment;

(d) SMEs may be unable to ensure that raw materials are produced in accordance with the eco-labelling criteria;

(e) SMEs lack the economic power to transfer (part of) the adjustment costs arising from the need to comply with criteria to their suppliers. For example, SMEs may find difficulties in acquiring the required chemicals and other materials at competitive prices;

(f) the relative costs of testing and verification, including plant inspection, may be particularly high for SMEs.

It thus follows that eco-labels in product categories which are to a large extent supplied by SMEs in developing countries are more likely than eco-labels in other product categories to require special attention because of the possible difficulties that producers in developing countries may encounter.

B. The case of least developed countries

43. In defining product categories and determining criteria for eco-labelling, special attention could be given to the possible effects of eco-labelling on the LDCs, in particular in the case of specific product categories which account for a significant share of LDCs' export earnings (for example, T-shirts, which have been earmarked for eco-labelling in the European Union, represent a significant share of total exports of Bangladesh, Maldives and Laos to the EU).

44. In some cases, eco-labelling, in conjunction with technical assistance and other support measures, may assist in establishing niche markets for products which are inherently environment-friendly and which are largely supplied by LDCs, such as jute. Furthermore, where developmental aspects could be used in conjunction with environmental factors as a basis for setting eco-labelling criteria, special consideration could be given to facilitating exports from LDCs.

C. Role of aid agencies

45. The role of aid agencies in the area of trade and environment, including eco-labelling was discussed in an OECD Workshop on Trade, Environment and Development Cooperation, organized by OECD's Development Co-operation Directorate (Paris, 28 October 1994). The summary report of the meeting stressed the role of aid agencies in providing technical assistance and training to strengthen the

capacities of developing countries to set their own standards, eco-labelling schemes, certification schemes, packaging, recycling and testing facilities[29].

46. The report also mentioned that aid agencies should explore the possibility of promoting mutual recognition. A report of OECD's Development Assistance Committee (DAC) recommended that aid agencies could play an important role in helping developing countries in exploiting markets for environment-friendly products, inter alia, by "developing and promoting eco-labelling schemes, encouraging consultations among producers, exporters, importers, and consumers on standards and criteria, supporting mutual recognition through better verification, certification and other quality control"[30].

IV. SECTORAL ISSUES

47. At the first session of the Working Group many delegates expressed an interest in examining the practical experience with eco-labelling on the basis of case studies. This Chapter provides a brief analysis of three product categories of export interest to developing countries. All three categories will be included in the eco-labelling programme of the European Union.

A. Pulp and paper

Box 2
Eco-labelling for paper products: some issues for developing countries

Due to favourable conditions of both climate and soil, the productivity of forests in Argentina and Chile is very high, both for pine wood (long fibres) as well as eucalyptus (short fibres).

Argentina's leading exporter of paper competes internationally on the basis of economies of scale and technology and, according to a case study on Argentina, is using best environmental practices. For example, the firm has reduced the environmental impacts of its effluent and improved its forest management in response to concerns expressed by foreign clients. Based on a technology developed within the firm, the bleaching process has been modified and the firm is now producing Totally Chlorine Free (TCF) paper.

A study undertaken by the German Development Institute (GDI) indicates that the pulp industry in Chile meets stringent international standards and exceeds domestic regulations, in particular with regard to chlorine-free bleaching, effluent treatment, water consumption, energy use and sustainable forest management. The GDI study notes that the Chilean pulp industry has nevertheless opted for a low profile policy in its public relations, rather than trying to take advantage of its achievements in terms of environmental management, and that the EU eco-label causes some disadvantages which are partially unjustified.

Brazil's pulp industry has achieved a high level of vertical integration and larger firms possess their own eucalyptus plantations. Fast growing eucalyptus plantations and mastery of forest management technologies provide Brazilian industry with an important comparative advantage. The supply of renewable energy resources and economies of scale also constitute comparative advantages.

The environmental effects of plantation forests depend e.g. on whether the plantations were established to replace natural forest or on degraded land and whether native or exotic species were used. In Argentina, experts recommended the establishment of plantation forests on marginal agricultural land also for economic reasons, in particular the availability of such land and the lower costs of land preparation in the areas concerned. In Chile, around 90 per cent of the wood processed or exported comes from plantation forests.

48. Almost all eco-labelling programmes have established criteria for eco-labels for various categories of paper and paper products. Criteria refer, for example, to recycled content of paper. Concerns about recycled content and PPM-related criteria have been expressed by exporters of paper as well as of pulp in both developing and developed countries. For example, producers of pulp in

Brazil, Canada and the United States have complained about certain draft criteria under the European Union eco-label for tissue products.

49. The draft criteria of the European Union eco-label on tissue products are almost exclusively PPM-related. Brazilian exporters have alleged that the emphasis on recycling in determining whether the criteria regarding the consumption of renewable resources are met discriminated against Brazilian producers who use wood from plantation forests for manufacture.[31] They also alleged that the criteria related to SO_2 emissions in the production process were of little or no relevance since acid rain was not a matter of concern in the location of production. They also alleged that calculations made to determine whether the criteria regarding the consumption of non-renewable energy resources are met de facto discriminate against Brazilian producers, who depend largely on hydro-electricity.[32] In addition, the system of "load points"[33] (to qualify for a label products should have not more than a stipulated number of load points) could allow paper mills to shift part of the costs of environmental adjustment to suppliers of pulp[34].

50. Only around 2 per cent of extra-EU imports of tissue products in 1992 originated in developing countries. With regard to pulp and paper products in general, 4.9 and 3.3 per cent of extra-EU imports originated in Brazil and Chile respectively.

B. Textiles and clothing

51. In recent years, a number of "private" eco-labels have emerged in the textiles and clothing sector, covering a range of articles. Examples are the German MUT (Markenzeichen Umweltschonenden Textilien - manufacturer's mark denoting environment-friendly textiles-, a process-related label), MST (Marke schadstoffgeprüfte Textilien -manufacturer's mark denoting textiles tested for harmful substances-, a product-related label) and ECO-TEX 100 labels.

52. Recently, draft criteria for eco-labels for T-shirts and bed linen have been developed for the European eco-labelling programme[35]. The draft criteria refer to environmental effects at different stages of the product's life-cycle, in particular those related to cotton growing and the manufacturing of fabrics. Consequently, most criteria are PPM-related, referring, for example, to efficiency in the use of energy and water, the treatment of waste water, cotton dust and noise. Specific criteria relate to the use of pesticides and chemicals in cotton growing or to the use of dyes or chemicals in the manufacturing process, in most cases to address local environmental effects at the location of production (a separate group of criteria has been developed regarding chemical residues in final products). Only a few criteria are clearly product-related.

53. A large part of consumption of textiles and clothing in the European Union is supplied by imports. As much as around 80 per cent of the value of EU imports of T-shirts and bed linen (excluding extra-EU trade) originates in developing countries. Consequently, many of the environmental effects meant to be addressed by the PPM-related criteria being developed under the European Union eco-labelling programme take place outside the European Union, principally in developing countries.

C. Footwear

54. In the Netherlands, the Stichting Miliekeur (SMK - Dutch Foundation for Eco-labelling) has developed a national eco-label for footwear, which became effective on 1 March 1994. The SMK has also been appointed as the "lead competent body" for establishing draft criteria for an European Union eco-label (the European Flower) for shoes. The determination of these draft criteria, however, is still under development[36].

55. Only some of the criteria developed by the SMK are product-related[37]. These

Box 3
Eco-labels for T-shirts and bed linen

In Brazil, the principal exporters of T-shirts and bed linen to the European Union are large firms in the State of Santa Catarina. Interviews with representatives of the five largest firms revealed that all of them were already making adjustments to comply with environmental requirements of European importers. For example, one firm, exporting bed linen, stated that fifty percent of its recent investments had been prompted by environmental requirements.

Four of the five companies interviewed had information on the European Union eco-labels from their European clients. These larger firms stated that they already complied with a number of the draft criteria for the EU labels for T-shirts and bed linen. Most of them, however, considered that it would be difficult to comply with some of the other criteria, in particular those limiting the use of pesticides and chemicals during cotton growing, and the waste water parameters. In Brazil the use of pesticides in cotton growing is low and cotton is almost completely harvested by hand. However, imports of cotton into Brazil are increasing rapidly and it is difficult for textile producers to certify that the cotton they buy is pesticide-free.

The Brazilian textile industry is very heterogeneous in terms of firm size, technology, and management. While larger firms which export to the European markets might be able to qualify for an eco-label, this would be much more difficult for smaller firms, especially when adjustments require investments and the renovation of machinery. In addition, while the negotiating strength of larger firms and their relationship with suppliers of chemicals permits them to acquire the required chemicals without significant additional costs, smaller firms would suffer significant cost increases on account of required input materials.

In India, the main exporters of T-shirts and bed linen are small firms. A case study on India indicates that cotton production and processing is mainly done by small farmers and cooperatives who are not aware of the eco-standards. Large firms may be reluctant to take the risk of backward integration because the market for raw cotton is controlled by the Government. Garment exporters are unable to implement eco-standards on the fabric manufacturers because a large proportion of the latter are located in the informal sector which sells largely in the domestic market.

The study also notes that niche markets for Indian eco-textiles is estimated to be only 20 to 25 per cent in Europe where higher prices could cover the adjustment costs. In the remaining market segments, which account for approximately 70 per cent of Indian exports to Europe, increased adjustment costs would largely have to be borne by producers.

include a long list of quality and performance ("functional") requirements, which are principally aimed at increasing the reparability and durability of shoes. One criterion refers to the "energy content" of shoes, aimed at reducing the consumption of energy and raw materials[38]. Other criteria, referring to materials, are clearly PPM-related. In the case of leather such criteria refer to chromium emissions into water, emission of organic solvents, treatment of waste water (via an individual or common biological water purification installation) and the "responsible" transport or re-use of waste leather. Similarly, PPM-related criteria have been set for cotton synthetic sole materials. It thus follows that the question of whether or not shoes comply with the eco-labelling criteria depends basically on the environmental quality of materials used, and many of

Box 4
Eco-labelling in footwear: possible effects on developing countries

Brazil, the world's fourth largest producer of footwear, exports almost two thirds of its production of leather shoes. Brazilian footwear producers are aware that compliance with eco-labelling criteria would require new forms of relationships with the leather sector. Major footwear producers have already tried to secure the supply of leather (unrelated to environmental factors) through vertical integration (purchase of tanneries and leather treatment plants) and increased imports from neighbouring countries, in particular Argentina and Uruguay. Many tanneries possess water treatment installations, but do not use them. One reason is that operational costs are relatively high, in particular for small and medium sized firms. There may also be problems involved in adequate disposal of liquid wastes and sludge.

Considerable efforts are being made in developing countries to reduce the environmental impacts of leather tanning. For example, the Government of India made effluent treatment a condition for issuing licences to new tanneries. Tanners in Argentina and India are becoming part of common effluent treatment (CET) plants, but are not sure whether the requirement that waste water be treated using a biological water purification would make their leather acceptable in the context of the SMK eco-label.

Interviews reveal that producers in developing countries perceive that incurring the additional costs associated with eco-labels would reduce the competitiveness of their products vis-a-vis other suppliers who focus their competitiveness on price, in particular suppliers from other developing countries. They also perceive that market conditions would not allow them to recover the additional costs associated with the required adjustments.

the corresponding criteria are PPM-related.

56. Domestic production of footwear in the Netherlands has been declining as imports have been increasing. Most footwear sold in the Netherlands -and in the European Union- is produced in third countries. In 1991, at least 91 per cent of all shoes sold in the Netherlands were imported (at least 84 per cent in the case of leather shoes and 97 percent in the case of footwear made from other materials). Developing countries accounted for 35 per cent of all imports and 82 percent of extra-EU imports in 1993, the principal developing country suppliers being China, Hong Kong, Brazil, the Republic of Korea and Indonesia). Moreover, domestic producers obtain a large share of their materials from imports. For some materials for which eco-labelling criteria have been established, such as cotton, there is no production in the Netherlands or elsewhere in the European Union (except Greece). Thus, most of the environmental effects which are addressed by the eco-labelling criteria developed by SMK are caused by production externalities outside the Netherlands, and to a large extent outside the European Union.

57. Some consideration has been given to the fact that conditions in third countries may differ from those in the Netherlands. For example, it was decided to exempt foreign producers from the requirement to process solid waste containing chrome (through recycling, deposit in a secure dumping site, or incineration whereby chrome is reclaimed) if such waste is not considered as chemical waste in the country of production.[39]

58. One factor of concern, in particular to producers in developing countries is the costs of testing and certification. These costs may be relatively high

for two reasons. First, since many exporters are SMEs, the costs of testing and verification tend to be high in relation to sales. Second, since a number of criteria refer to the materials used to produce footwear, both the shoes and the materials must be certified. The SMK prescribes different methods for assessing compliance with each criteria. The SMK requires product testing to assess compliance with the product-related (functional) criteria. The assessment of compliance with PPM-related criteria is normally based on declarations by producers plus the suppliers of materials.[40]

V. TAKING ACCOUNT OF DEVELOPING COUNTRIES' INTERESTS

59. At its first session, the Working Group recognized that transparency is a basic condition for taking into account the interest of developing countries in the elaboration of eco-labelling criteria. However, several delegations pointed out that improved transparency would not by itself be sufficient to reduce the potential adverse effects of eco-labelling.

A. Transparency

1. Concepts of transparency

60. There are different concepts of transparency. For example, while ex-ante notification would imply an "interactive" process wherein the party contemplating the environmental measure and the affected parties engage in a dialogue during the development of the measure, ex-post notification leads to "passive" availability of information through publication after the implementation of the measure.

61. Transparency provisions under WTO and under the TBT Agreement, such as publication, notification, right to comment, and obligation to take comments into account, have proven to be useful (in the context of technical standards and regulations). In accordance with Article 4.1 of the TBT Agreement, Governments shall take all reasonable measures to ensure that local government and non-governmental standardization bodies as well as regional standardization bodies accept and comply with the "Code of Good Practice for the Preparation, Adoption and Application of Standards". The TBT Agreement also recommends the establishment of "enquiry points" (Article 10).

62. There is growing consensus that eco-labelling requires a broader concept of transparency. For example, the draft ISO guiding principles (see below) reflect a broad concept of transparency implying, for example, the availability for inspection and commenting to interested parties of information on criteria, certification and award procedures, and periodic revision of criteria. Transparency also involves the participation of interested parties, including foreign producers, in the development of criteria and certification as well as early notification of concerned domestic and foreign producers about the product categories and criteria.

2. Transparency at different stages of the eco-labelling process.

Selection of new product categories

63. Transparency should cover the whole process of eco-labelling, including the selection of new product categories. Transparency would include consultations with potentially affected trading partners at the earliest possible stage. Where imports are significant, transparency may require consultations on the question of whether or not eco-labelling in a certain product category may potentially help to reduce environmental stress.

64. Transparency also requires publication of lists of product categories being considered for future eco-labelling. For example, in the European Union, the Commission "will publish periodically a list of products for which work is about to begin"[41].

Preparing draft criteria

65. In existing eco-labelling schemes, the selection of product categories, as well as the determination of draft criteria and limit values, is carried out by a Board or similar body. Currently, foreign producers do not participate in these bodies. There is growing recognition that, where relevant, foreign producers should be invited and allowed to be participants, with domestic producers, in the development of criteria for products of export interest to

them. This has also been discussed in ISO.

Consultations

66. Throughout the eco-labelling process, transparency can be increased through consultations. The working draft of ISO's guiding principles recommends the establishment of a formal consultation mechanism, at the earliest possible time (it is also recommended that the result of the consultation should be made public). In this context, the European Union has established a Consultation Forum.

The public review process

67. In most eco-labelling programmes, there is a public review process of draft criteria before final product criteria are published. Any interested party, including foreign producers, can take advantage of this process. Thus, transparency of existing eco-labelling programmes may not differ substantially from the transparency provisions of the TBT Agreement. However, the ability of foreign producers to participate in the review process depends on many factors, such as the timely dissemination of information on new product categories being selected for eco-labelling, the length of the review process and the ability to be physically present and to devote time to the process.

68. In this context it is worth noting that the TBT Code of Good Practice for the Preparation, Adoption and Application of Standards recommends the publication of a work programme (at least once every six months) containing the standards under preparation (and those which have been adopted in the preceding period).

Publication and dissemination of information

69. Transparency also involves the active dissemination of information on product categories for which eco-labelling has been established as well as on product criteria. At the multilateral level, ITC is planning to provide information to developing countries on trading opportunities for environment-friendly products, eco-labelling systems, criteria and procedures.

3. Market research and other supportive studies

70. Market research constitutes an important requirement of successful eco-labelling. An additional objective of market analysis could be to identify foreign suppliers who would need to be consulted or invited to participate in the determination of criteria in order to help avoid discrimination and to render eco-labelling more effective. The results of market analysis could thus provide guidance to the effective implementation of steps aimed at increasing the transparency of eco-labelling.

71. Analysing the main environmental impacts of a product at different stages of its life cycle and assessing the relevance and feasibility of setting criteria in each case involves supporting studies. Such studies assess whether or not eco-labelling in a certain product category may potentially help to reduce environmental stress by promoting the consumption and production of products meeting certain criteria. Given the complexity involved in the multi-criteria and life-cycle approach of eco-labelling, supporting studies tend to have a significant impact on the determination of draft criteria.

72. Supporting studies are often carried out on the basis of databases and other information available in the importing country or in countries with similar environmental and technological conditions, as well as inquiries among ministries and domestic industry. Where eco-labelling has potential effects on developing countries, the supporting studies could include a careful analysis of these impacts in order to render eco-labelling more objective and more effective in reducing environmental stress. Market research is also important in this context. In certain cases supportive studies could be carried out in cooperation with

research institutes in the country of production.

4. Parameters for increased transparency

73. At its first session, the Working Group felt that it might be useful to target product categories of significant export interest to developing countries with a view to encouraging their active participation in the determination of criteria for such categories. The Working Group may wish to discuss whether it would be possible to establish parameters which could assist eco-labelling bodies in identifying such product categories, for example on the basis of market shares or import shares.

74. The preferred parameters would probably be actual and potential market shares. Since systematic data on market shares are not readily available, the market research carried out as part of eco-labelling process (see above) would have a particularly important role to play. Data on import shares are more readily available.

75. An analysis on the European Union, based on 1992 data, shows that in the case of 445 out of 734 groups of industrial consumer products at the six-digit HS level, more than half of the value of imports (excluding intra-EU trade) originated in developing countries and China.[42]

76. Parameters based on import shares tend to ignore the export interests of smaller trading partners. Thus, export shares may be more appropriate as a basis for identifying product categories of trade interest to smaller exporters, in particular the LDCs. A formula proposed at Marrakesh, in the context of tariff negotiations, identifies smaller trading partners with substantial trading interests in a particular product by calculating, for each tariff item, the imports originating in a specific country as a percentage of all imports originating in that country.[43] This formula identifies the trading partners whose export earnings depend significantly on the product concerned.[44]

77. Parameters based on market or trade shares of the product categories selected for eco-labels may be insufficient to identify the relevant trading partners. As mentioned in Chapter III, when LCA is used, the question of whether a product qualifies for a label may depend to a large extent on the materials used, for example, pulp (for tissue products), cotton (for T-shirts and bed linen), and leather (for shoes). The question is then whether, in addition to the manufacturers of the product categories subject to eco-labelling, the principal suppliers of materials should also be involved in the process of establishing criteria.

B. Guiding principles

78. The ISO, through Sub-committee 3 of Technical Committee 207 (207/SC3), is preparing three international standards on environmental labelling, one of which deals specifically with type-I eco-labelling. The standard on type-I -consisting of guiding principles- is intended to provide practitioners and interested parties with a reference document which helps them to ensure the credibility and non-discriminatory nature of eco-labelling programmes. The February 1995 draft consists of three main sections: (1) Guiding principles and practices; (2) Procedures for setting criteria; and (3) Guide for certification procedures. Another working group is preparing a document "Goal and Principles of All Environmental Labelling", containing a number of principles which are relevant for all types of environmental labelling.

79. The draft text recognizes that eco-labelling may constitute a barrier to trade. It makes a number of recommendations to prevent restrictions to trade, for example with regard to the definition of product categories, the determination of criteria - which have to avoid the exclusion of product and processes regarded as environmentally acceptable in the producing country -

certification procedures and transparency, including the participation of foreign producers in the development of criteria. Some reference is also made to the PPMs issue.

80. At the time of writing (March 1995), the ISO standard on Eco-labelling (CD 14024) is being voted on at the sub-committee level and it is expected that the committee phase of its development will be completed in late June 1995. The draft will then need to be submitted for a six-month vote by the full ISO membership before it is approved as an International Standard. The timing of the resolution of these votes is difficult to predict, but the earliest date for publication would be in the first half of 1996. Member countries will then decide whether or not to include the standard in their national legislation[45].

C. Dealing with PPM-related criteria

81. The application of PPM-related criteria to imported products tends to pose a number of problems, in particular when such products originate in countries where environmental and developmental conditions are significantly different from those in the importing country. Not all eco-labelling programmes use PPM-related criteria. If such criteria are used, a number of options could be considered to avoid or mitigate adverse effects on trading partners.

1. Exemptions

82. When eco-labelling criteria address intrinsically local environmental problems, it may at times be desirable to exempt foreign producers from the requirement to comply with specific process-related criteria (see the example of chrome waste treatment for footwear in the Netherlands). Exemptions may be desirable, for example, when the environmental problems addressed are insignificant in the context of the local conditions in the producing country. For example, eco-labelling requirements concerning SO_2 emissions would impose extra costs on producers in countries where such emissions are not a matter of concern. Disadvantages of outright exemptions could be that the credibility of eco-labelling might be questioned by consumers and environmental groups and that producers in the importing country might allege that a competitive advantage is provided to foreign producers. These disadvantages, however, need not be more relevant than is the reverse discrimination when the importing country's criteria are imposed on the exporter[46].

2. Compliance with local environmental regulations

83. A general requirement[47] of most eco-labelling programmes is that a product must comply with all relevant environmental regulations. Some eco-labelling programmes recognize that foreign producers should not be required to comply with PPM-based regulations in the importing country. For example, the Environmental Choice Programme (ECP) of Canada includes compliance with "all applicable governmental and industrial safety and performance standards" (including environmental) under its general requirements, but it is understood that imported products should meet the local PPM-related standards in the country of production, not the Canadian regulatory process standards.

84. With regard to specific criteria for certain product categories, however, PPM-related criteria (which are used in some programmes) tend to be applied in a uniform way to domestically produced and imported products. Such criteria are often set at limit values that go beyond regulatory requirements in the importing country. It may nevertheless be possible to limit the requirements for products originating in developing countries to compliance with existing regulations in the country of production. It is to be noted that environmental regulations in developing countries are often based on standards which are similar to those used in developed countries, but enforcement may be more difficult. It may be unrealistic to require firms in developing countries, in particular SMEs, to go beyond regulatory requirements in order to qualify for an eco-label in an

external market. Eco-labelling could, however, perform a useful function if it provides incentives to comply with existing environmental standards.

3. The "cradle-to-export border" approach

85. In report TD/B/WG.6/2 it was suggested that the life-cycle analysis of a product could be split into two stages: "cradle-to-export border", and "import-border to grave". While eco-labelling criteria for the import-border to grave stage would be based on the priorities of the importing country, the criteria developed for the cradle-to-export border stage could be set in accordance with the environmental conditions and priorities of the producing/exporting country.

86. Another approach would be to exercise special care when designing PPM-related requirements in areas where imports are predominant[48]. Thus, PPM-related requirements and limit values for product categories which include significant imports, in particular from developing countries, would be avoided or designed in such a way that adverse effects on producing countries are avoided.

D. Equivalency

87. The concept of equivalency is set out in report TD/B/WG.6/2 (paragraphs 58-64). In the present report, it has been stressed that in order for eco-labels to provide relevant information to consumers and have the potential to contribute to the reduction of environmental stress, PPM-related criteria must be appropriate in the context of local environmental conditions in the country of production. The concept of equivalency could take account of comparable environmental objectives, different ways of achieving them, and differences in environmental and developmental conditions across countries[49]. In the context of ISO's Working Group which is preparing the draft "Goal and Principles of All Environmental Labelling" (see above), the recognition of environmental improvements in different countries as potentially equivalent, based on their overall purpose and significance, has also been discussed.

E. Mutual recognition

88. At its first session, the Group agreed that mutual recognition should be examined closely. Mutual recognition of eco-labels would be a desirable objective to render trade and environment interests compatible. ISO's Working Group mentioned in paragraph 87 has also discuused mutual recognition among environmental labelling programmes based on equivalency of procedures and objectives.

89. The rationale for mutual recognition is set out in report TD/B/WG.6/2 (paragraphs 65-73). Mutual recognition in the context of eco-labelling generally would imply that, if certain conditions are met, qualification for the eco-label used of the exporting country is accepted as a basis for awarding the eco-label used in the importing country (mutual recognition would normally apply to identical or similar product categories). At the first session of the working group, frequent reference was made to a proposal whereby the eco-labelling programme of the importing country would agree to award its own eco-label to products which met the process-related criteria of the exporting country, and the use and disposal criteria of the importing country.

90. Mutual recognition is of key interest to developing countries and an important long-term objective in establishing eco-labelling programmes in some of these countries. Mutual recognition, however, does not serve only trade interests. The analysis presented in Chapter II above, however, indicates that mutual recognition appears to be a basic condition for eco-labelling to have any significant positive environmental effects on developing countries.

VI. Technical assistance

91. Technical assistance and capacity-building efforts in the area of eco-labelling and certification may help in reducing the potential negative effects of eco-labelling on developing countries and may assist producers in taking advantage of trading opportunities that may arise for environment-friendly products. Technical assistance in capacity-building could also be useful in supporting developing countries wishing to establish their own eco-labelling programmes and in promoting mutual recognition of eco-labelling programmes. Technical assistance is further needed to facilitate the effective participation of developing countries in future international deliberations on eco-labelling, in particular in ISO. Furthermore, the establishment in developing countries and countries in transition of standardization bodies -or training of existing bodies- to conduct testing and certification in the producing country could reduce associated costs.

92. In addition, developing countries may require technical assistance and capacity building to take advantage of existing transparency provisions in eco-labelling programmes in their export markets as well as of any improved transparency which may result from ISO's guiding principles currently being developed and from the suggestions made in this report (in particular the involvement of developing countries in the process of determining criteria for products of export interest to them).

93. ISO's technical assistance activities support developing countries in a number of ways, in particular with regard to their effective participation in ISO's standard-setting.[50]

94. As part of its overall programme on environment-related trade promotion in developing countries, the International Trade Centre (ITC) has initiated a programme of work on eco-labelling, focusing on promotional and operational activities, and to assist developing country producers to seize trading opportunities provided by eco-labelling in their target markets. ITC is also considering providing assistance to institutions, associations and enterprises in developing countries in establishing company-level labels or national-level eco-labelling schemes.

95. UNCTAD's technical cooperation projects have focused on policy-oriented research on the possible effects of eco-labelling on developing countries, as well as on conceptual work on possible ways and means to increase the compatibility between the environmental objectives of eco-labelling and the trade and sustainable development interests of developing countries. A technical cooperation project on "eco-labelling and international trade", funded by IDRC has now been completed.[51] UNCTAD continues to cooperate with other international organizations, including UNEP and ITC.

96. Practitioners in OECD countries often provide technical assistance to developing countries and countries in transition with a view to assisting them in setting up eco-labelling programmes.

VII. CONCLUSIONS AND RECOMMENDATIONS

97. While eco-labelling is primarily aimed at environmental objectives, it has the potential to discriminate against foreign producers, in particular when it involves products imported from countries where environmental and developmental conditions are substantially different from those in the importing country. There is particular concern that importing countries unilaterally determine criteria on production processes for products which are principally produced in developing countries. In addition, it can be argued that if the objective is to provide information to the consumer, then the consumer is better served if PPM-related information relates as closely as possible to environmental improvements in the country of production.

98. ISO has progressed considerably in preparing draft guiding principles for eco-labelling, aimed at contributing to the credibility of eco-labelling programmes and at helping to avoid discrimination. These guiding principles are expected to make significant contributions, in particular with regard to transparency. Eco-labelling, however, continues to cause concern, in particular to developing countries. A number of issues still need to be resolved:

- the relationship between eco-labelling and the provisions of the multilateral trading system, in particular the Agreement on Technical Barriers to Trade (an issue included in the terms of reference of the WTO Committee on Trade and Environment);

- the transaction costs that may arise from the proliferation of different eco-labelling schemes;

- the PPM-issue;

- the need for mutual recognition in order to render eco-labelling more effective, in particular for developing countries;

99. Despite growing consensus that eco-labelling programmes which opt for using PPM-related criteria may have to allow differences in such criteria in accordance with the local environmental and developmental conditions in the country of production, little or no progress has been made in implementing solutions for the problems that may arise when PPM-related criteria are applied to imported products. It is doubtful that transparency alone would be able to avoid the discrimination that may arise from the use of specific PPM-related criteria which are incompatible with the environmental and developmental conditions and problems of third countries.

100. Eco-labelling agencies may wish to analyse carefully the actual and potential market and trade shares of developing countries in new product categories being considered for eco-labelling. Where such shares are significant, consultations could be held with producing countries with a view to assessing the potential trade, environmental and developmental effects on developing countries. Such assessment can be useful in making an analysis of the cost and benefits of eco-labelling in specific product categories. It may be preferable to avoid the use of PPM-related criteria, in particular for product categories which are predominantly supplied by developing countries. Alternatively, PPM-related criteria could be set in accordance with the environmental and developmental conditions of the country of production.

101. A number of developing countries are initiating eco-labelling programmes. Since the demand for eco-labelled products in developing countries tends to be small, eco-labelling in these countries generally will have significant environmental effects only if it allows firms that qualify for the label to increase sales in external markets. Mutual recognition is of key importance to developing countries. The contribution that eco-labelling can make to reducing environmental stress in developing countries depends on whether or not a significant market for eco-labelled products can be created for developing-

country producers. Trade has an important role to play in this context. Further efforts to strengthen international cooperation in the field of eco-labelling should focus on creating reasonable prospects for mutual recognition of eco-labelling programmes.

Endnotes

1. UNCTAD, "Eco-labelling and market opportunities for environmentally friendly products", TD/B/WG.6/2, Geneva, 6 October 1994. In addition, the secretariat submitted the following two reports: "UNCTAD's technical cooperation programme on trade and environment", TD/B/WG.6/MISC.1, Geneva, 21 November 1994 and "Report on the workshop on eco-labelling and international trade", TD/B/WG.6/MISC.2, Geneva, 21 November 1994.

2. See TD/B/WG.6/2, box 1. Currently there are about 20 type-I eco-labelling programmes (TD/B/WG.6/2, box 2).

3. TD/B/40(1)/6

4. Chudnovsky,D., G. Lugones and M. Chidiak, 1995, Comercio International y Medio Ambiente: el Caso Argentino, study prepared under the joint UNCTAD/UNEP project on Capacity-building on Trade and Environment. The study was also funded by project ARG/90/014, Ministerio de Relaciones Exteriores, Comercio Internacional y Culto.

5. The statistical and information annex is being issued as TD/B/WG.6/Misc.3 (English only).

6. An example would be to place a requirement on SO_2 emissions in the production process. In a country where such emissions are not a matter of concern (the levels may be very low relative to assimilative capacity) the eco-labelling requirement would impose extra costs.

7. For example, requirements in the European Union may refer to sulphur dioxide and nitrogen oxides. Since such pollutants are important in the European Union, technologies have been developed. In developing countries where these pollutants are less important technologies have not been developed. An eco-label would thus make it necessary to import such technologies. A. Markandya, op. cit.

8. Differences in environmental infrastructures across countries have a large impact on valuations of what is a "cleaner product". For example, if municipal waste water treatment plants already have phosphorus cleaning, as in Denmark, the use of phosphorus would be preferred to other calcium binding substances. Another example refers to fly-ash. A number of countries have built up infrastructure to allow to use fly-ash as a raw material in the cement industry (In Denmark, practically all fly-ash is used in cement production). Thus, certain activities leading to fly-ash, such as burning of coal, are valued differently as compared to other countries. See Helle Petersen, A possible (international) implementation strategy for product oriented environmental policy measures, in International Workshop on Product Oriented Environmental Policy, Workshop Proceedings, The Hague, the Netherlands, September 30th- October 1st, 1993.

9. Paragraph 4.8(b).

10. The Netherlands' Ministry of Housing, Physical Planning and Environment (VROM), Nota Product and Milieu, The Hague, December 1993.

11. Porter, M.E. and C. van der Linde, 1994. Towards a New Conception of the Environment-Competitiveness Relationship.

12. F.H. Oosterhuis and Y.T.M. van Scheppingen, Inventory of product policy instruments. Case study: the Netherlands. Institute for Environmental Studies, Free University, Amsterdam, November 1993.

13. See Hartwell R.V. and L. Bergkamp, "Eco-labelling in Europe: New Market-Related Environmental Risks?" BNA International Environmental Daily, Oct. 20, 1992. in Porter E. and C. van der Linde, Towards a New Conception of the Environment-Competitiveness Relationship, March 1994.

14. Frieder Rubik, Product policy in support of environmental policy. Case study Germany. Institut für ökologische Wirtschaftsforschung. September 1993

15. The establishment of eco-labelling criteria, in particular with regard to PPMs, which are incompatible with the environmental and developmental conditions and problems of third countries could lead to discrimination. See Imme Scholz, et.al., op. cit.

16. Moreover, even though consumers may care about environmental impacts in other parts of the world, they need not treat environmental impacts in the country where they reside as the same as impacts caused in other countries. Hence it would be inappropriate to require the same emission standards or the same weights for foreign producers as for domestic producers if the objective is to inform domestic consumers about the environmental consequences of a product. See: A. Markandya, "Eco-labelling: An introduction and a review", February 1995.

17. Verbruggen, H., 1994, Changing North-South Comparative Advantages and the Role of Development Co-operation, paper presented at the OECD Workshop on Trade, Environment, and Development Co-operation, Paris, 28 October 1994.

18. De Motta Veiga, P., M. Reis Castilho and G. Ferraz Filho, 1994, Relationships between Trade and the Environment: the Brazilian Case, Study carried out under the joint UNCTAD/UNDP project on "Reconciliation of Environmental and Trade Policies".

19. Rachel Crossley, C.A. Primo Braga and P.N. Varangis, Is there a commercial case for tropical timber certification?, Paper presented to the UNCTAD Workshop on Eco-labelling and International Trade. Geneva, 28-29 June 1994.

20. Anniken Enger, Randi Lavik, Pal Strandbakken and Eivind Sto, "The White Swan in Norway: Knowledge of and Trust in Eco-labelling". Paper presented at the international Conference on Sustainable Consumption, Lillehammer, Norway, February 12-14, 1995.

21. According to one source, the German Government seems to require many public procurement and institutional purchasing programmes to consider only products that have been awarded the Blue Angel eco-label. See Hartwell and Bergkamp, op. cit quoted in Porter, E. and C van der Linde, op. cit.

22. At the recent Oslo Roundtable on Sustainable Production and Consumption (6-10 February 1995), the use by governments and business of environmental strategies for procurement was identified as one of six "priority areas".

23. Maria Isolda Guevara, Ramesh Chaitoo; Murray Smith, Canada's Environmental Choice Programme and its Impact on Developing Country Trade, paper Presented to the UNCTAD Workshop on Eco-labelling and International trade, Geneva, 28-29 June 1994.

24. ECP hopes to expand the number of product categories for which eco-labels will be operative by 60 new categories. As part of its plan, ECP is putting more emphasis on market orientation, public awareness building (e.g. through cooperation with licensees in the fields of advertising and marketing) and new approaches to eco-labelling criteria. For example, a study has been commissioned to identify and prioritize possible product and service categories, based on the estimated environmental benefits of their inclusion in the programme, their sales

volumes (considering both household expenditure and government procurement) and possible industry response.

25. In both programmes product-specific award criteria tend to focus on the use and disposal stages of the product's life cycle (see TD/B/WG.6/2, Box 4).

26. Guevara, Chaitoo, Smith, op. cit.

27. The Singapore Green Labelling Scheme, 1994

28. For example, in Germany Coca-Cola Company stopped using the Blue Angel label for refillable PET bottles as it appeared to have lost its marketing effectiveness. See IOW, op. cit.

29. OECD, Workshop on Trade, Environment and Development Co-operation, 28 October 1994. Summary Report. OECD/GD(95)10, p.10

30. OECD, Development Assistance Committee, "Trade, Environment and Development Co-operation", OCDE/GD(95)7, Paris 1995.

31. Fundaçao Centro de Estudos do Comercio Exterior, "Eco-labelling schemes in the European Union and their impacts on Brazilian Exports". Paper presented to the UNCTAD Workshop on Eco-labelling and International Trade. Geneva, 28-29 June 1994.

32. See TD/B/WG.6/2, paragraph 33.

33. To qualify for an eco-label, products should not have more than a stipulated number of load points or "penalties" which are given on the basis of specific parameters.

34. Imme Scholz, Karola Block, Karen Feil, Martin Krause, Karolin Nakonz, Cristoph Oberle, "Medio ambiente y competitividad: El caso del sector exportador chileno". Instituto Aleman de Desarrollo (German Development Institute), Berlin 1994.

35. By February 1995 the study on textiles had reached Procedural Step V of the "Procedural Guidelines for the establishment of product groups and ecological criteria". Therefore the draft proposal had yet to be sent to DG XI of the European Commission.

36. SMK has forwarded its proposal to the European Union for discussion among the competent bodies.

37. Draft criteria on Pentha-Chloro-Phenol (PCP) content of leather, which would limit PCP content in leather to a maximum of 100 ppm, have been dropped since more stringent mandatory standards, establishing a maximum PCP content of only 5 ppm) have now been introduced.

38. The "energy content" of footwear is calculated on the basis of the volume of different materials used in a pair of shoes and a list of coefficients expressing for each material "the energy of raw materials plus the energy used in processing". This method does not take account of the actual amount of energy consumed in different countries. Thus, comparative advantages derived from using sunlight in the drying process (the case of India) or hydro-electricity (the case of Brazil) are not taken into account

39. However, the requirement that waste water be dumped via a biological water purification may be difficult to comply with for foreign producers using other systems. With regard to a criterion on chrome (Cr) emissions (concentration of chrome in waste water), the corresponding limit value is derived from existing

legislation in the Netherlands.

40. Such declarations refer to a technical dossier containing information which the manufacturer uses to prove to a certification institution that he has met the stated requirements, such as the specification of materials, laboratory research (preferably conducted by a third party), and certificates from suppliers. Whether or not on-site inspection is necessary is left to the discretion of the certification institution. If plant inspection were required, it might be necessary to visit at least two companies: the shoe factory and the leather tannery.

41. European Commission, Commission Information on Eco-labelling. Procedural Guidelines for the establishment of product groups and ecological criteria. Paragraph V.8.

42. Since agricultural products as well as raw materials, intermediate and capital goods normally are not earmarked for eco-labelling, the analysis undertaken by the UNCTAD secretariat is based on non-agricultural (i.e. industrial) consumer goods only. A total of 734 product groups at the 6-digit HS level were classified as consumer products (developing countries and China accounted for 50.1 per cent of all extra-EU imports of industrial consumer goods). In the case of 445 products, 50 per cent or more of the value of extra-EU imports originated in developing countries or China. Examples are (in brackets the principal suppliers at the six-digit HS level): leather articles (China), carpets (Iran and India), tableware and kitchenware (Republic of Korea, China and India), textiles and clothing (Turkey, Indonesia, Thailand, Hong Kong, Taiwan Province of China, Morocco, China, Republic of Korea, Egypt, Cyprus, Pakistan and Malaysia), footwear (China and Republic of Korea), jewellery (Thailand and Hong Kong), cooking appliances (Taiwan Province of China), table knives (Republic of Korea), razor blades (Argentina), sewing machines (Taiwan Province of China), electro-mechanical and electro-thermic domestic appliances (China), hair dryers (China), smoothing irons (Singapore), microwave ovens (Republic of Korea), cassette players (China), radios (China), TV receivers (Thailand and Taiwan Province of China), motorcycles (Taiwan Province of China), bicycles (Taiwan Province of China), clocks and watches (China and Taiwan Province of China), sleeping bags (China), toys (China and Taiwan Province of China), tennis and other balls (Indonesia or Pakistan), ice and roller skates (China), fishing rods and reels (Republic of Korea), cigarette and other lighters (Mexico), and combs (Taiwan Province of China).

43. Understanding of the interpretation of Article XXVIII of the General Agreement on Tariffs and Trade 1994.

44. An application of this formula to extra-EU imports (but excluding trade flows of less than US$ 500,000) indicates that certain textiles categories represent significant export interest for LDCs. For example, woollen carpets represent 87 and 32 percent of Nepal's and Afghanistan's exports to the EU respectively. T-shirts represent significant export interests for Maldives (18.7 percent), Laos (14.5 percent) and Bangladesh (11.7 percent or US$ 113.6 million).

45. The following countries have requested to participate in the work of the ISO Sub-committee on eco-labelling: Australia, Austria, Belgium, Brazil, Canada, Colombia, Czech Republic, Denmark, Finland, France, Germany, India, Ireland, Japan, the Republic of Korea, Malaysia, Netherlands, New Zealand, Russian Federation, South Africa, Spain, Sweden, Switzerland, Tanzania, Thailand, Trinidad and Tobago, Turkey, United Kingdom, Uruguay, United States. However, among developing countries only the Republic of Korea, Malaysia and South Africa have nominated experts to participate in the discussions. The UNCTAD secretariat has been participating as liaison organization in the work of TC 207/SC 3 and has provided relevant inputs, for example on the international trade aspects of environmental labelling.

46. A. Markandya, op. cit.

47. The requirements for awarding an eco-label are normally divided into:
- general requirements which apply to all products and set general condition for awarding the label; and
- product criteria, which set technical requirements applicable to a specific product category.

48. Environmental Choice Program, Environment Canada, "Eco-labelling and PPMs, The international Context". Paper presented to the OECD Workshop on Eco-labelling and Trade. London, 6 and 7 October, 1994.

49. At the first session of the working group, some delegations stressed that UNEP should pursue studies to determine a basis for establishing environmental equivalency.

50. The effective participation by developing countries in the meetings of ISO technical committees and sub-committees has increased slowly over the years, but has still not reached the level expected. ISO awards travel and subsistence grants to some countries for participating in one or two meetings, with the hope that this will act as a catalyst to generate wider participation of developing countries in ISO's activities.

51. The papers presented to the Workshop on Eco-labelling and Trade are being published in book form.

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EFFECTS OF ENVIRONMENTAL POLICIES, STANDARDS AND REGULATIONS ON MARKET ACCESS AND COMPETITIVENESS, WITH SPECIAL REFERENCE TO DEVELOPING COUNTRIES, INCLUDING WITH LEAST DEVELOPED AMONG THEM, AND IN THE LIGHT OF UNCTAD EMPIRICAL STUDIES

Environmental policies, trade and competitiveness: conceptual and empirical issues

Report by the UNCTAD secretariat

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CONTENTS

		Paragraphs
	Summary	1- 14
	PART A: CONCEPTUAL ISSUES	15- 48
I.	INTRODUCTION	15- 23
II.	FACTORS AFFECTING COMPETITIVENESS	24- 32
III.	ECO-TAXES AND BORDER TAX ADJUSTMENTS	33- 41
	A. Eco-taxes	33- 35
	B. Border tax adjustments	36- 41
IV.	TRADE IN DOMESTICALLY PROHIBITED GOODS	42- 48
	PART B: EMPIRICAL ISSUES	49-109
V.	ENVIRONMENT AND COMPETITIVENESS: A DEVELOPING COUNTRY PERSPECTIVE	49- 91
	A. Competitiveness effects of domestic environmental policies	51- 62
	1. Domestic concerns	52- 58
	2. Industrial restructuring and openness	59- 62
	B. Compliance with external environmental policies	63- 85
	1. Composition and destination of exports	64- 66
	2. Cost structure	67- 73
	3. Structural factors	74- 79
	4. Firm size	80- 83
	5. Awareness, information and transaction costs	84- 85
	C. Conclusions	87- 91
VI.	MULTILATERAL ENVIRONMENTAL AGREEMENTS, TRADE AND COMPETITIVENESS	92-110
	A. Introduction	92
	B. Trade effects of MEAs	93- 97
	C. Competitiveness effects	98-109
	D. Conclusions	110
	PART C: CONCLUSIONS AND RECOMMENDATIONS	111-120

Summary

1. At its first session, the Ad Hoc Working Group on Trade, Environment and Development decided to include the following item in the provisional agenda for its second session: "The effects of environmental policies, standards and regulations on market access and competitiveness, with special reference to developing countries, including the least developed among them, and in the light of UNCTAD empirical studies".[1] This report has been prepared to support the discussion on the item. It is divided into three parts. Part A examines conceptual issues relating to the linkages between environmental policies and competitiveness. Part B draws on empirical studies undertaken under UNCTAD's technical cooperation programme on trade, environment and development, in particular country-specific studies carried out by research institutes in developing countries and countries in transition under the joint UNCTAD/UNDP project on "Reconciliation of environmental and trade policies" and the joint UNCTAD/UNEP project on "Capacity-building on trade and environment". The conclusions and recommendations are contained in Part C. A synthesis report of the empirical studies is being issued separately (TD/B/WG.6/Misc.4, English only).

2. The trade and environment debate has centred on the competitiveness effects of environmental policies. Such effects are determined by an evaluation of the costs and benefits of environmental protection. While protection of the environment is essential for both environmental and long-term economic reasons, such protection does not have infinite value. Therefore, environmental policies should be submitted like other policies to a rigorous cost-benefit analysis.

3. Such an analysis is difficult, in particular because of the problems involved in estimating environmental benefits in monetary terms. The valuation of these benefits also depends on social preferences which may differ across nations. The discussion on competitiveness in this report focuses on private costs of firms or sectors.

4. In both developing and developed countries the capacity of firms and economies to adjust to environmental policies depends on a number of factors. On the whole, it may be easier to adjust to domestic rather than external environmental policies, not least because the former already incorporate competitiveness concerns to a certain extent and tend to reflect more closely the environmental and other priorities of the country imposing these requirements. Implementing environmental policies may be relatively more difficult in developing countries than in developed countries for several reasons, such as inadequate infrastructural facilities, insufficient public funds and competing priorities for these funds. Nevertheless, developing countries are undertaking important initiatives to move towards higher levels of environmental protection.

5. Competitiveness effects may also differ between the short and the long run. While in the short run the competitiveness effects of environmental policies may be negative, in the long run they may be less significant or even positive. Dynamic effects are more likely to be positive when there are more possibilities for innovation.

6. Where increased costs of production are attributed to the fact that environmental standards are more stringent or better enforced than in other countries, competitiveness concerns may be seen to discourage the introduction of more stringent environmental standards. Compensating for the perceived competitiveness effects introduced by environmental policies may be questioned on the grounds that the latter are only one of the factors which influence competitiveness. In addition, as recognized by the Commission on Sustainable Development (CSD) there are legitimate reasons for diversity in environmental regulations across countries; and differences in the relative costs of production constitute the very basis for gains from international trade.[2] If all the factors which affect competitiveness are compensated for, then the international trading system may be severely affected. Moreover, it is unlikely that developing

countries would deliberately set lower standards in order to obtain short-term trade and economic advantages, as lax standards may imply higher abatement costs in the long run.

7. Eco-taxes and charges are likely to become increasingly important as part of a package of economic instruments used to address environmental problems. Border tax adjustments may be used to compensate for the competitiveness effects of domestic eco-taxes. The magnitude of their competitiveness effects and the extent of their use are ultimately empirical questions. Further research is needed to examine both the applicability of economic instruments such as eco-taxes in developing countries, as well as the trade and competitiveness effects of border tax adjustments.

8. Trade in domestically prohibited goods (DPGs) is another issue which is of concern to developing countries. Few countries have, however, made a rigorous cost benefit analysis of permitting the importation of DPGs, which should therefore form a subject of future empirical research.

9. Empirical research shows that for developing countries complying with specific environmental standards in external markets may be more expensive in relative, and sometimes even in absolute, terms than it is in the developed countries. This is because much of the investment in basic infrastructure has not yet been made and thus the cost of compliance for private firms is higher. The technology and the incorporated inputs required for meeting such standards may also not be readily available. Lack of administrative infrastructure may make it difficult to disseminate information on standards and on monitoring compliance.

10. Empirical evidence from the country case studies (see para. 1) has highlighted the importance of additional factors which have hitherto received little attention in discussions on competitiveness. For example, these studies show that it is more difficult for small firms to comply with environmental regulations and standards, both domestic and external, than it is for large firms. This is because small firms have greater difficulties in accessing information, inputs, and finance. Moreover, the economic use of some large scale environmentally sound technologies often requires a minimum scale of operation, which is beyond the scope of small firms. Environmental policies may thus need to specially address the concerns of small firms.

11. In addition, increased openness was generally found to facilitate compliance with environmental policies. However, increased openness will be more effective in mitigating adverse competitiveness of environmental policies if it is accompanied by other positive measures such as better access to markets, technology, and finance.

12. On Multilateral Environmental Agreements (MEAs), the little empirical evidence that exists suggests that their trade and competitiveness effects on developing countries could be significant. There is a need for a more detailed analysis of these effects, with a view to examining the adequacy of compensation mechanisms in existing and future agreements.

13. The competitiveness effects of external environmental policies and MEAs are conditioned by several factors, some of which are structural or systemic in nature. In general, the more open and dynamic the economy, the greater is its adaptability to external environmental policies. The sectoral composition of exports, level of government support, size of enterprises, access to information, availability of technology and inputs at reasonable prices and infrastructural development all have a role to play in determining the competitiveness effects of environmental policies. Thus, the main conclusion of this report is that it is difficult to measure the competitiveness impacts of environmental policies in isolation.

14. Environmental policies may be insufficient to generate environmental protection in developing countries, unless they are accompanied by economic

development. Public policy, both at the national and international levels, should ensure that environmental policies include the developmental dimension. National policies could be directed at fostering a climate of innovation, openness and capacity-building to promote the more effective implementation of domestic environmental policies. Measures to promote better market access, information sharing, as well as increased access to knowledge, technology and finance should be encouraged at the international level.

PART A: CONCEPTUAL ISSUES

I. INTRODUCTION

15. The interplay of trade and environmental policies today takes place in a complex scenario of changing output structures, high levels of unemployment in the OECD countries, rapid technological development and a multilateral trading system which encompasses issues such as foreign direct investment, intellectual property rights and trade in services. Additionally, the growing concern for environmental protection and sustainable development arises in the context of globalization, and significant trade liberalization. As a result, domestic policies, including environmental policies, may increasingly impinge on international trading and investment relations.

16. Questions have arisen as to whether initiatives by individual nations to protect human health and the environment through environmental policies affect international trade and investment patterns. For example, environmental policies could affect competitiveness if an industry in one country faced substantially higher pollution control costs than the same industry in other countries. This may also influence the location of the industry. Differences in domestic policies may lead to pressures either to harmonize them or to manage the trade that is affected by them.

17. The impact that these factors have on trade and investment will differ significantly according to whether environmental policies address production or consumption externalities.[3] As far as consumption externalities are concerned, the WTO Technical Barriers to Trade Agreement allows countries to extend domestic measures to imported products, provided they are enforced in accordance with WTO rules, including national treatment and non-discrimination. This treatment may significantly lessen, though not eliminate, the potential for friction among countries on account of competitiveness concerns. As far as production externalities are concerned, it is generally understood that WTO rules do not permit countries to impose domestic process standards on imported products. Process regulations may nevertheless raise costs for the producer and reduce the competitiveness of export and import-competing companies, and thus create trade friction on account of competitiveness concerns.

18. It has been argued that the implications for competitiveness of differing environmental standards are no different in principle from those of other policy differences across nations, including social or welfare policies. For example, the degree of government support for research and development and science education can influence the competitiveness of high-technology industries. Similarly, differences among nations in taxation policies towards saving and investment can influence the domestic capital stock and thus also the competitiveness of capital intensive industries. Where should the line be drawn if the competitive effects of various domestic policies were to become a source of demands for "levelling the competitive playing field"?[4]

19. There is also a school of thought which holds that environmental policies may actually enhance competitiveness, not only at the national, but also at the firm level. On the one hand, lax environmental regulations and standards may not enhance a nation's competitiveness, increase corporate profits, or protect jobs. When domestic standards lag behind those of other countries, inefficient domestic producers may be insulated from the need to innovate and invest in new equipment. Moreover, this would retard their long run competitiveness as well as the emergence of domestic producers of environmental goods and services, thereby allowing foreign producers to increase their competitive advantage.[5] On the other hand, stringent standards provide a country's industries with a stimulus to innovate.

20. Protecting the environment while raising living standards and maintaining competitiveness will require growth-inducing technological change, particularly in developing countries. Most new technologies use fewer inputs, including energy, per unit of output, and are less polluting than the old technologies they

replace. Much of the increasing environmental friendliness of newer technologies is induced by efforts to produce at lower costs and with greater efficiency. When economic incentives do not produce this result, public policy can create the incentive structures that ensure that technological change increases environmental friendliness.

21. The competitiveness effects of environmental policies in the case of developing countries are determined to a large extent by their ability to trade and to grow. Economic growth does not necessarily imply more of the same kind of goods, but it is in most cases compatible with new and cleaner products made by cleaner and more efficient processes. Trade, economic growth and the changes in production patterns should broadly be seen to include changes in products consumed; the processes by which they are made; the materials used by the production process; the energy sources used; infrastructural development; organizational structures of production; and the institutional economic framework.[6]

22. The extent to which environmental policies influence the international competitiveness of domestic producers is ultimately an empirical question. Existing evidence in most OECD countries confirms that the links between environmental costs and export competitiveness is on a par with that of capital, labour and research and development; and the effects of environmental costs on competitiveness have in general been small. Neither does available empirical evidence suggest that cost differences due to environmental standards have significant effects on the relocation of industries.[7] The experience of developing countries in this context is relatively limited (see chapter V). However, the effects of environmental policies on the competitiveness of developing countries may be somewhat different from that of the OECD countries.

23. It is to be noted that some of the issues examined in this report, such as environmental taxes and charges and trade in domestically prohibited goods, are also being discussed in other international organizations such as the WTO, UNEP and OECD. This report briefly examines the competitiveness aspects of such policies on developing countries. Such effects may be further analysed in the light of the information forthcoming from empirical studies carried out jointly with UNEP and UNDP.[8]

II. FACTORS AFFECTING COMPETITIVENESS

24. In conceptual terms, the environment-competitiveness relationship has often been thought of as a trade-off. On the one hand are the social benefits that arise from adherence to strict environmental standards, on the other hand are the costs of complying with them. There is widespread disagreement about the size of the social and economic benefits, e.g the improvement in public health from phasing out particular substances or the increase in life expectancy from a given reduction in pollution. Although the issue of valuing social benefits is an important one, because the benefits are difficult to measure, the discussion on competitiveness in this report will focus on private costs of firms and sectors.

25. The costs of complying with environmental regulations can be separated into their fixed and variable cost components. Properly designed environmental policies can induce firms to use less material and energy inputs, resulting in reduced variable costs. In some cases, however, if compliance with environmental policies results in increased costs of raw materials or increased labour inputs, then variable costs may be higher. Even in these cases variable costs may decline over time due to learning and innovations in compliance methods. Fixed costs, while high in the short run, may decline as they are amortized over the life of the project.

26. Competitiveness effects at both the firm and the national level may change over time. At the firm level, the difference between static and dynamic effects arises largely because innovation can lead to cost savings in the long run. In addition to innovation, government policies -particularly with respect to

investment, infrastructure, education and awareness building- can also have positive effects on competitiveness in the long run.

27. In a dynamic situation, technologies can change, raw materials and finance can be better sourced and markets for environmentally friendly products can be developed. In addition, environmental regulations and standards can induce innovation, thus at least partially offsetting the costs of compliance. Thus, strict regulation can be better for competitiveness than lax regulation in the long run. However, this positive correlation will only hold if regulations are properly crafted and companies are aware of the possibility that such regulations may be imposed.

28. Innovation can be defined broadly as the ability to improve a product or its performance, its production process, its marketing and how it is advertised. In the context of international trade, competitiveness arises from innovations that anticipate international needs while at the same time addressing local needs.

29. Innovation effects at the product level can include better performing or higher quality products, e.g energy-efficient household appliances. They can also lower the costs of using or disposing of a product, e.g recyclable paper. Innovation benefits at the process stage could include raw materials savings, conversion of waste into valuable by-products, and reduced costs of waste transportation and disposal.

30. On the conditions for fostering innovation, two kinds of views have been expressed: first, that governments should provide broad "enabling" conditions, but leave the market free to generate innovation and its diffusion. The second, while accepting the importance of free markets, sees the government taking a more active part in innovation. How these two strategies are pursued to foster innovation or adaptation at the sectoral level depends in part on the export competitiveness of products generated through innovation. The export-oriented, newly industrialising countries, for example, tried to test the success of their innovation strategies through a process of selective government support. Products unable to compete internationally had their assistance cut off.

31. Competitiveness effects of environmental policies are also influenced by the process of standard setting. The main actors involved are central and local governments, industry and consumer or other non-governmental groups. Evidence suggests that while standards may be set by any of these three groups, the design of standards is more likely to be carried out by the industry rather than by governments. This is because bureaucrats alone often do not have the technical competence to develop standards and may need to rely on industry's knowledge of feasible standards.[9] Thus, while the competitiveness effects of domestic standards are not significant those of external standards could be more important.

32. While this chapter has analysed some of the factors affecting competitiveness at a broad level, it is useful to examine some specific policies, their possible effects on competitiveness and measures used to alleviate these effects. The next chapter thus examines the issue of eco-taxes and their competitiveness implications. Environmental standards and regulations have been examined in greater detail in reports TD/B/40(1)/6 and TD/B/41(4). Other newly emerging environmental policy instruments with a trade impact will be examined by the Working Group at a later stage.[10] The issues of environmental taxes and trade in domestically prohibited goods which have been briefly analysed in this report could be further studied in the context of the country case studies being undertaken under the joint UNCTAD/UNDP and UNCTAD/UNEP projects. The results of such empirical analysis could provide useful inputs to the deliberations on these issues in other fora.

III. ECO-TAXES AND BORDER TAX ADJUSTMENTS

A. Eco-taxes

33. Economic instruments such as eco-taxes or environmental charges are being increasingly used as a tool to address environmental problems. Economic instruments are often considered to be preferable to regulations as they are more flexible and potentially more cost-effective. Environmental taxes and charges can be levied either on the product (indirect tax) or on the process (direct tax).[11] For example, Sweden has been using indirect environmental taxes for a range of products including batteries and fertilisers, while direct taxes have been imposed on sulphur and nitrogen oxide emissions.

34. Domestic taxes are likely to have competitiveness effects because, pursuant to the imposition of a tax, domestically-produced items become relatively more expensive than competing products in foreign markets, and more expensive than competing imported products in the domestic market. This may delay the introduction of taxes, unless they can be adjusted at the border. A border tax adjustment consists of the imposition of a charge on imported products corresponding to the tax borne by like domestic products, and the exemption from or remission of taxes on products to be exported.

35. WTO rules allow the border adjustment of taxes only on final products, and possibly on inputs consumed in the process of production,[12] but prohibit (or are ambiguous with respect to) taxes on some non-physically incorporated inputs and processes. Taxes which can be adjusted at the border may be preferred for competitiveness reasons to those which cannot be so adjusted, e.g a process tax.

B. Border tax adjustments

36. In the case of taxes designed to address environmental effects at the consumption or disposal stage, the impact would be enhanced if it were applied to all products, including imported products, being consumed and disposed of in the domestic market. In this case, domestic taxes should be applied to imports and could be rebated on exports. These border tax adjustments are consistent with WTO rules, provided that obligations relating to transparency, most favoured nation (MFN) and national treatment are met.

37. In the case of taxes aimed at addressing environmental effects at the production stage, the environmental effectiveness of border tax adjustment is less clear. From the domestic point of view, environmental taxes which aim to change production behaviour are generally more effective if they are levied as far upstream in the production process as possible.[13] This means that it will in general be better if the tax is levied on the production and extraction process causing the environmental problem rather than on the resulting product.

38. However, when applied in the context of international trade, it is less clear that the desired environmental benefits will result from border tax adjustments. If the reason for imposing a tax is to discourage a particular process or use of an input domestically, then depending on the share of exports in total production, remitting export taxes could defeat the purpose of the tax, and imposition of the tax on imports may serve little purpose.[14]

39. Border tax adjustments for domestic process taxes could serve two purposes: (1) to encourage a change in environmental behaviour of foreign producers; and (2) to respond to concerns of domestic producers who have incurred environmental costs as a result of process taxes that they not be disadvantaged vis-a-vis foreign producers. The first alternative could be viewed as extraterritorial imposition of domestic environmental standards. Compensating for competitiveness effects of firms can be questioned on the grounds that it is not clear that higher environmental compliance costs alone have a critical impact on competitiveness, and that there are many other cost elements that account to a greater extent for differences in competitiveness, including those that reflect national values and choices.

40. Another concern with respect to border tax adjustment arises where imported products were subject to product or process regulation, rather than taxes, in the country of origin.[15] In this case, the product already bears additional costs from complying with applicable regulatory requirements which cannot be adjusted at the point of export. The question that arises is whether and to what extent the product should then be subject to further taxes in another country merely because its country of origin chose to use regulation rather than fiscal measures. Such a consequence may encourage countries to adopt fiscal measures in place of regulations, which may not always be desirable from an environmental point of view, particularly in developing countries.

Conclusion

41. Applying border adjustments to environmental taxes, particularly process taxes, raises a number of problems which have been discussed above. Further research is needed on the effects of border tax adjustments on the export competitiveness of developing countries. It is also necessary to analyse whether such taxes and their adjustment at the border would help address environmental problems in developing countries. An additional issue which must be addressed in this context is to what extent it is administratively and economically feasible to use economic instruments for environmental purposes in developing countries.

IV. TRADE IN DOMESTICALLY PROHIBITED GOODS (DPGs)

42. While environmental policies have raised various kinds of trade and competitiveness concerns, trade in certain kinds of products, such as domestically prohibited goods (DPGs) may by itself exacerbate environmental problems. In this situation there are two options: (a) to ban trade in such products and (b) to investigate options by which trade in such products does not have harmful environmental consequences.[16] Keeping these two options in mind, this chapter examines the issue of trade in domestically prohibited goods.

43. Developing countries have raised concerns with respect to the export, in particular by developed countries, of goods prohibited for sale in the domestic market of the exporting country. Importing countries often do not know that a specific product being imported is prohibited for sale in the domestic market of the exporting country. Also, exporters may at times make false declarations or include prohibited products among permitted ones. In addition, testing facilities in many developing countries may be inadequate. Further, the absence of consumer protection regulations in a number of developing countries may result in the marketing of products which cannot be sold in the market of the country of origin.[17]

44. In addition, developing countries may not have the capacity to handle DPGs or be unable to absorb the associated health risks, and thus favour a ban on the trade of such products. In this context, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal contains a number of provisions which could usefully be analysed.[18]

45. Another problem which arises in the case of developing countries is that of export. For example, a case study reports that when Colombia imported sodium bisulphite from the United States (which was banned in the United States), it was unable to export shrimps washed with sodium bisulphite to the same country. With better information, Colombia's decisions might have been different. Similarly, chemicals which are prohibited for sale in developed countries may be imported for reexport to third countries without any prior notifications to these countries.[19]

46. At the same time, however, goods that are prohibited in one country may be safe in another, due to different circumstances (climate, geographical conditions and other factors). Furthermore, industrial processes in the importing

country may use goods which are domestically prohibited in the exporting country. Thus outright export bans may not always be desirable both from the point of view of the exporting and of the importing country.

47. Trade in DPGs can result in allocative efficiencies, but there may be a need to demonstrate that compensation for possible health and other damages is feasible. If such compensation and liability coverage by exporters of DPGs can be provided, both from an economic and an environmental point of view, then trade in DPGs may not be harmful.

48. Importing countries need to consider the costs and benefits of allowing imports of goods which are domestically prohibited in the exporting country. However, such an exercise will be difficult without complete information on the prohibited goods and technologies and the reasons for their prohibition. Binding obligations on notification of such products and technologies as well as adequate financial and dispute settlement provisions could help in improving the exchange of information. The use of prior informed consent procedures may also be an important initiative in this direction. In this context, it is worth noting that FAO and UNEP established a joint programme for the implementation of Prior Informed Consent(PIC) in 1990.[20] Apart from notification to WTO contracting parties, additional notification at the point of sale under prior informed consent procedures may be needed.[21]

PART B: EMPIRICAL ISSUES

V. ENVIRONMENT AND COMPETITIVENESS: A DEVELOPING COUNTRY PERSPECTIVE

49. In surveying the competitiveness effects of environmental policies and consumer demand two scenarios arise: (1) the effects of domestic policies, and (2) the effects of policies in external markets. This chapter draws upon the empirical studies undertaken under UNCTAD's technical cooperation programme on trade, environment and development, in particular country-specific studies, as well as on a synthesis report on a number of country case studies.[22]

50. The chapter examines a number of factors which have an important bearing in determining the effects of environmental policies on competitiveness. Some of these are structural in nature while others are case-specific. The structural factors are, for instance the rate of growth of an economy, its degree of openness, the level of its infrastructural development and the composition of its exports. Specific factors could include availability of raw materials, the size of firms and the capacity to innovate.

A. Competitiveness effects of domestic environmental policies

51. Generally speaking, domestic environmental policies have had smaller effects on competitiveness than have foreign environmental policies. This can be attributed to several reasons. Domestic standards tend to respond to domestic environmental concerns and are often developed in cooperation with the industrial sector. To this extent, they already incorporate competitiveness concerns and the required technology is likely to be available domestically.

1. Domestic concerns

52. Empirical evidence suggests that, with a few exceptions, when environmental regulations responded to domestic concerns, their competitiveness effects were relatively small. In some cases, domestic regulations were more stringent than external ones. The effects of domestic policies might, however, be more significant for unprofitable firms, or where domestic legislation responded primarily to external requirements.

53. Governments in developing countries are moving towards higher environmental standards. One way of implementing higher standards is through requiring new investment to meet stricter environmental regulations. In a number

of countries, obtaining licenses or loans is conditional on compliance with environmental regulations. For example, the case study on Argentina attributes the good environmental practices of a number of firms in the paper industry to the fact that at the time of their establishment, special environmental requirements existed as part of Argentina's industrial promotion policy, or as a condition to access to preferential and foreign loans.[23] In Brazil, the National Bank for Economic and Social Development (BNDES) not only requires that new industrial projects comply with legal environmental requirements, but also offers lines of credit to support pollution abatement programmes.[24]

54. In the Philippines, an economy-wide study found that pollution abatement costs as a percentage of total costs was less than 1 per cent for 51 out of 61 sectors. The only sectors where this cost exceeded 2 per cent were: public administration and defence, poultry and poultry products, forestry, agricultural crops, livestock and livestock production and electricity. More detailed case studies show that some firms (those with costs above the average) may be affected in selected sectors. These include aquaculture and fish processing. Apart from these sectors, it appears that local environmental standards would not have a significant impact on overall sectoral competitiveness.[25]

55. The above examples show that the introduction of more stringent environmental standards need not result in adverse competitiveness effects, provided that firms are attuned to this possibility. However, the study on Poland found that there are likely to be more serious export losses resulting from changes in domestic environment and environment-related regulations. For example, the effects of the increase in electricity prices is conjectured to affect the export of the following energy intensive goods: fertilizers, plastics, organic chemicals, metal products and building materials. Moreover, as part of market reforms, prices of both raw materials and energy have risen sharply in Poland. Hence, many exports characterised by a high content of raw materials and energy are likely to be affected. While these reforms have impacted positively on the environment, they have contributed to a loss of international competitiveness. One positive aspect of the stricter environmental regulations is the development of a pollution control industry in Poland, which may also be able to export to other transition economies.[26]

56. The study on Brazil indicated that restrictions imposed from outside the country were not the main reason for the implementation of stringent environmental standards, as was observed in the case of the forest policy established by the Government of the State of Minas Gerais. In fact the costs and difficulties of meeting environmental standards dictated by the national forest policy far exceeded those put in place by the external markets for pig iron producers.[27]

57. The study on India indicated that the costs of domestic compliance differ from those of compliance with international standards. For the leather sector, cost increases in leather and leather products resulting from domestic pollution abatement rules were estimated on average at 1.5 percent. However, this could be onerous for small producers, as it covers a substantial fixed cost component. Compared to the cost of meeting external standards, however, it is tiny. That cost is 300 percent, most of which is presumably recovered from a higher sale price.[28]

58. In Turkey, the domestic market enterprises interviewed made the interesting point that stricter national standards would actually benefit them because: (a) they were currently facing different standards in the home and export markets and this was adding to their costs; and (b) producers in other developing countries were selling goods in the Turkish market that met the lower standards, thus making it difficult for local producers to compete in price with imports.[29]

2. Industrial restructuring and openness

59. Industrial restructuring for improving production efficiency may also result in environmental improvements, provided that costs are reduced in the

process. However the process of industrial restructuring could also be accompanied by rising costs and decreasing competitiveness. In this case firms will be less inclined to invest in environmental improvements. Increased openness will generally make it easier to access raw materials and technologies, thus reducing the competitiveness effects of environmental policies.

60. The experience with industrial restructuring in Poland's steel industry indicates that while reducing capacity, it will also reduce environmental damage by 70-80 percent. Those plants that are left will be more efficient, with production costs down by $20-25/ton. The effect of openness in the context of the Polish economy may, however, make it difficult to mitigate the adverse competitiveness effects of environmental policies.[30] Given that the country has set a target of achieving European Union membership within 10-12 years, it is likely that many local producers will not be able to meet the required standards and, therefore, be unable to export (or even produce for the home market). At the same time, the decision to seek membership to the EU, and the time period over which to phase in the stricter standards, have been taken by the Polish government and cannot be said to have been imposed from outside. It is also worth noting that the cost of meeting the standards is not fixed, but is a function of the policies implemented to bring about the higher standards. The use of market-based instruments could help to substantially reduce these costs.[31]

61. A study on Argentina's paper industry shows that in response to trade liberalization and the associated industrial restructuring process, a number of medium-sized enterprises have achieved certain improvements in environmental performance as a result of their efforts to achieve higher production efficiency.[32] Examples are the recovery of fibres in paper mills and higher efficiency in the use of energy and water. Many firms now possess installations for the primary treatment of effluents, which in various cases were installed or improved during the restructuring process. There has also been an increase in the use of recycled materials with a view to reducing costs, in particular in the case of the packaging industry. However, environmental improvements which do not reduce costs, e.g secondary effluent treatment or reduced air pollution, have been less frequently implemented by firms.

62. Increased openness in China led to the adoption of environmentally sound technologies (ESTs) partly in response to foreign requirements of product quality, which have resulted in both reduced wastes and in increased profits for the enterprises operating them.[33] These include a cement plant in Quju and a valve plant in Tanjing among others. The examples above show that increased openness and the consequent competition results in a better climate for innovation.

B. Compliance with external environmental policies

63. Environmental regulations on products are relatively scarce, and are concentrated in sectors such as food, tropical timber products, chemicals, textiles, paper products and products containing hazardous substances. Nevertheless, consumer preferences for environmentally friendly products, though not uniform across markets in developed countries, may have competitiveness effects. Therefore, the competitiveness effects of external environmental requirements depend to a large extent on the composition and destination of exports. If a large share of exports comprises environmentally sensitive products, then regulations and standards are likely to have a more significant impact on competitiveness; and if export markets are large, there is a greater incentive to improve environmental standards of products. Other factors which will affect the competitiveness of firms include access to information, availability of raw materials and technologies, infrastructural facilities and firm size.

1. Composition and destination of exports

64. The larger the share of exports of products which are sensitive to environmental regulations the more is the overall export performance of a country

likely to be affected. However in fast-growing economies some of the negative competitiveness effects can be diffused through a concerted effort at export diversification, both of products and of markets. Environmental regulations on inputs may also have an impact on the competitiveness of the final product, even though there may not be regulations on the final product themselves.

65. In Colombia, a survey of exporting firms showed that 63 per cent had not perceived or experienced major competitiveness effects of international environmental standards; only 16 per cent said they had. This is partly explained by Colombia's trade pattern. The European market is not the most important one for Colombia; Germany, for example, which has stringent standards, accounts for only 2.4 and 7.6 per cent of Colombia's non-traditional and traditional exports, respectively[34].

66. Export growth in Argentina and Brazil is largely based on products which use natural resources and energy intensively. Although the cost of pollution abatement in these sectors is high, being dynamic sectors the competitiveness effects have not been significant. The studies also suggest that participation in international markets may prompt increased care with environmental variables.[35] For example, the Argentina case study suggests that packaging requirements have affected producers of carton boxes directly (a large share of exports go to developed country markets) and indirectly (among the principal clients of the sector are exporters of fruit and manufactured food to the European markets). Environmental improvements have thus been made as a consequence of the export orientation of the sectors concerned.

2. Cost structure

67. If export competitiveness is based on being able to sell cheaply, e.g labour intensive products such as textiles and footwear, then regulations and standards which lead to any cost increase are more likely to have an adverse effect on competitiveness. For example, packaging regulations may have more significant effects on competitiveness in the case of low value added products, such as fruit and vegetables, than they do on high value added products. Similarly, input price increases arising from compliance with external environmental regulations will affect competitiveness adversely. On the other hand, in the case of policies such as eco-labelling, which are based on product differentiation, price-based competition may in some cases insulate producers from the competitiveness effects of such policies.[36]

68. In the case of commodities, a large proportion of the cost would be accounted for by the cost of raw materials, and thus competitiveness effects of environmental regulations may be significant. For example, the case study on Colombia suggests that in a situation of falling world prices, internalizing environmental externalities would put several small coffee producers out of business. In Jamaica the Government was unable to impose higher environmental standards on alumina producers because of falling world prices for alumina.[37]

69. The cost of inputs may be an important element in determining the effects of environmental regulations on the competitiveness of the final product. For example, bans on pesticides or some kind of dyes will not only affect the dyestuff or chemicals industry, but will also have far wider implications for exports of food as well as of textiles and garments. A study in India has shown that a ban on the use of benzidine dyes is likely to double the cost of dyes, affecting the competitiveness not only of the dyestuff industry but also of the textile industry. This is because some 60 per cent of the dyeing costs of fabrics is attributed to the raw material costs. Similarly, bans on certain pesticides and chemicals are likely to affect approximately 60 per cent of India's exports of food products to the OECD countries.[38] The above example shows that the availability of specialized inputs has an important bearing on the competitiveness effects of environmental policies.

70. The availability of raw materials and technologies would also have a bearing on the cost of compliance. For instance, cleaner products and processes

may entail the substitution of imported raw materials for domestic raw materials, particularly for industries which use chemicals as inputs, such as textiles and footwear.[39] Approximately half of the manufacturing companies surveyed in Turkey found that compliance with environmental requirements would necessitate the import of raw materials and intermediate goods, often at higher cost. Similarly, cleaner technologies may not be readily available domestically or installing them may require scrapping existing facilities. The report on eco-labelling (TD/B/WG.6/5) also shows that obtaining an eco-label may be made difficult because of a lack of appropriate raw materials and chemicals.[40]

71. Competitiveness effects are more pronounced according to whether the standard or regulation requires a change in the process or technology. Even if the regulation is product related it may require a change in technology, which may be expensive. In addition, even if there are no mandatory process regulations, importers may nevertheless request the use of specific PPMs. This may require a change in technology and thus have an impact on export competitiveness.

72. An example of how product standards may require changes in technology and investment is given in the study on India. Adhering to eco-standards for a single blue dye would require an investment of US$ 13m in the case of some leading firms. This is because producing this dye would require upgrading the technology, including establishing secondary treatment plants in order to obtain the requisite quality, and investment in automation control instruments to monitor the area-to-fuel ratios and carbon-dioxide emissions. Even where imports of technology are not required, additional know-how and imports of chemicals to meet product standards may be high.

73. In Turkey, it was found that exporters accepted that foreign clients would specify the processes to be adopted and often worked closely together with their clients. The necessary technology was mostly available domestically and the volume of exports was unaffected by the imposition of stricter regulations in the European Union.[41]

3. Structural factors

74. Other structural variables play a large role in determining the adjustment capacities of firms or sectors to external environmental regulations, and therefore affect competitiveness. These include import tariffs, relationship with foreign firms, price structure and factor composition.

75. For example, Indian exporters have reported that the PCP ban in the German market raised the cost of tanning leather. By contrast, the Argentina case study reports that producers did not find their costs increasing significantly in response to the PCP ban. There are several structural factors that could have contributed to this difference, among them being Argentina's trade liberalization policies, which made imports more accessible. In contrast, India's tariff regime may have made the importation of the substitute chemical more expensive.[42]

76. Similarly, studies on the agricultural sector in India show that internalising externalities may require structural changes in farming patterns. For example, in the district of Ludhiana, the predominant rice/wheat farming system can be made more environmentally friendly and more economical, but that would require pricing reform, improvements in water management, an alternative cropping system and better monitoring of the ground water problem. This would require government intervention and support.[43]

77. In Jamaica, the Natural Resources Conservation Authority (NRCA) in 1991 introduced interim standards on air and water quality. However, NRCA faces several challenges with respect to their implementation. At a time when public expenditures in general are declining due to structural adjustment programs, it

is very difficult for the national government to mobilise funds for environmental expenditures. Moreover the NRCA does not have the necessary personnel or machinery to monitor the compliance of companies with environmental standards. This is particularly the case for the alumina and bauxite industry.[44]

78. With regard to the competitiveness effects of linkages with foreign firms, the study on Argentina indicates that subsidiaries of transnational corporations or companies otherwise linked to foreign enterprises have also introduced substantive changes in environmental management. For example, the principal producer of special papers allocated 25 per cent of its planned investment to environmental protection equipment and, following instructions from the mother-company, is importing totally chlorine free pulp for all its products.

79. Lack of infrastructural facilities may make it difficult to comply with environmental standards. Moreover, the competitiveness effects of higher environmental standards would be partially mitigated by improvements in infrastructure.[45] This is supported by a World Bank study which has estimated that only about 15 per cent of the costs needed annually for sustainable development in developing countries would be for industry, assuming that developing countries would reach comparable environmental standards to those of the OECD countries in 15 years' time.

4. Firm size

80. Size has an important influence on the ability of a firm to implement environmental standards and regulations. Investment in environmentally friendly technologies may be easier for large rather than small firms: large firms may also find it easier to access finance, information and raw materials.

81. For example, a study on India's textile industry shows that only large companies have primary and secondary level effluent treatment facilities and pollution monitoring units. Small firms are more vulnerable because their awareness of eco-standards is low and there is insufficient knowledge about chemical inputs. In addition, environmental investment in effluent treatment plant, for example, requires a minimum scale of operation. The study has also estimated that approximately 70 per cent of India's exports of cotton fabrics and garments to Europe (primarily by small firms) may be affected by eco-standards.[46] Additionally, it has also been estimated that meeting eco-standards in most of the major markets may increase fixed costs by about 10 per cent and variable costs by 15 per cent at the firm level. This may have significant effects on competitiveness in view of the fact that profit margins in the highly competitive textiles sector are not very high.[47]

82. A study on Argentina's paper industry shows that small firms, which generally use old equipment and out-dated technologies, often have a more serious environmental impact than large firms. Small firms tend to be located in or close to urban areas. It is more difficult to improve the environmental performance of these firms due to their limited financial capacity and space (i.e the small size of industrial sites complicates the installation of water treatment facilities). For many small firms, for example, it is not economical to recover chemicals. Large investments may also be difficult to justify since older factories tend to be completely written-off. Also, size makes technological adjustments easier and more economical.

83. On the other hand, it has been argued that small and spatially dispersed polluters cannot be treated with the same sense of urgency that large firms should be. Infrastructural improvements may also be needed more urgently for small firms than for large firms. For example, better municipal waste water treatment facilities may reduce the costs of treating water effluents for small firms.

5. Information, awareness, and transaction costs

84. Efforts to analyse the effects of environmental policies in OECD countries on exports of developing countries are rendered difficult by a number of factors. In many developing countries there is scant information on the existence of such standards among the producers, much less about their effects on exports.

85. Obtaining information about changes in regulations and the fact that they vary from country to country can have significant effects on competitiveness. In India, examples of industries that have been affected by differing foreign regulations are motor vehicles and pharmaceuticals. In this case different technologies and production runs were required to meet differing environmental standards across markets.[48] As with India, exporters in Turkey found some loss of economies of scale in meeting the requirements of different markets.[49]

86. In the case of packaging, the uncertainty related to packaging regulations has had an impact on trade (see TD/B/41(1)/4). Changing regulations may also increase the costs of obtaining information and the costs of exporting to different markets.

6. Conclusions

87. One conclusion that emerges from the empirical studies is that many developing countries are implementing increasingly stringent environmental regulations and standards, thus reducing the scope for trade friction. In some cases, these standards may be more stringent than those of their OECD trading partners. As in the case of developed countries, domestic environmental regulations appear to have generally had relatively small effects on competitiveness of firms in developing countries.

88. Competitiveness tends to be relatively more affected by the environmental regulations of trading partners. Open economies have greater scope for reducing the competitiveness effects because of better access to information, inputs and technology. On the other hand, openness increases import competition which may lead to negative competitiveness effects unless the firms themselves are dynamic and are able to expand their markets.

89. The competitiveness effects of both domestic and external environmental regulations may differ between small and large firms. Studies indicate that large firms have been little affected in comparison with small firms. This suggests that the need to comply with external environmental standards may have some effects on the level of industrial concentration. This differential effect also indicates that governments may have to introduce specific measures to promote adaptation and innovation in small firms. They may also have to use special assistance mechanisms for disseminating information, including on raw materials, and research into cost effective means for mitigating the competitiveness effects of environmental standards and regulations. International efforts could also be specifically directed at alleviating the competitiveness effects on small firms in developing countries.

90. Most of the case studies show that economies which are stagnant are less able to implement environmental standards. Even if there are significant sectoral effects, growing economies have more options for moving towards compliance with stringent standards because the negative effects in some sectors may be compensated by the growth of other sectors. Economic growth goes hand in hand with increases in capital stock, and it is easier to install cleaner technologies when new investments are being made. In addition, in growing economies the possibilities of innovation are likely to be higher as are the chances of mitigating adverse competitiveness effects in the long run.

91. Improvements in infrastructure can also play a vital role in reducing the costs of compliance, particularly for small firms. For example, improved infrastructure will reduce the cost of compliance with water effluent standards

as part of the expense would be borne by municipalities which install waste water treatment facilities. Better sanitation and education would also reduce the costs of compliance with environmental policies.

VI. MULTILATERAL ENVIRONMENTAL AGREEMENTS (MEAS) TRADE AND COMPETITIVENESS

A. Introduction

92. There is a high level of consensus that global environmental problems should be tackled through internationally agreed measures under Multilateral Environmental Agreements (MEAs). In the case of issues such as greenhouse gases, ozone depleting substances (ODSs), or the conservation of threatened species, MEAs are essential. Principle 7 of the Rio Declaration states that "in view of the different contribution to global environmental degradation, States have common but differentiated responsibilities". Technical and financial assistance has been incorporated into a few MEAs. In some cases trade measures have also been written in MEAs, but only to be used as a last resort in the event of non-compliance. Of the 180 MEAs negotiated, only 18 provide for the use of trade measures, including the Montreal Protocol on Substances that Deplete the Ozone Layer, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the Convention on International Trade in Endangered Species (CITES). Available evidence on the effects of MEAs on trade and competitiveness is limited to only a few agreements such as the Montreal Protocol. Thus most of the empirical evidence used in this chapter relates to the Montreal Protocol.

B. Trade effects of MEAs

93. Some evidence of the trade effects of the Montreal Protocol suggests that while total OECD imports of products included in Annexes *I-E* of the Protocol declined between 1989 (the year the Protocol was signed) and 1993, imports of these products from some developing countries have increased. Exports of products containing controlled substances from the OECD to the rest of the world have, however, remained constant. This suggests that there may have been some relocation of production facilities to some developing countries, although not necessarily as a consequence of the Montreal Protocol.

94. As ODSs are being phased out, developing countries that export products using such chemicals (such as refrigerators) are finding that their markets are being squeezed as buyers want to shift to versions based on substitutes, which may require additional investment and new technology. However, the stipulations of the Protocol helped one Chinese company to increase its exports of freon-free air conditioners, while exports of refrigerators declined by 58 per cent between 1988 and 1991. Other adversely affected export items from China include air conditioners with refrigerants, cleaning articles with blowing agents, chemical products and some miscellaneous organic and other products.[90] It is as a consequence of this decline that China has stepped up its phase-out program faster than would be required for developing countries under the Protocol.[91]

95. The effects on exports also depend on the products which are being exported. For example, in the Philippines, MEAs have had no significant effect on exports. However, an agreement on trade in tropical timber would impact significantly on the country's exports of furniture as local sources of sustainable timber are very few. On the other hand, some MEAs would actually benefit the Philippine's exports. MEAs regulating driftnet fishing, such as the 1989 Wellington Convention for the Prohibition of Fishing with Long Driftnets and the UN Moratorium on Driftnet Fishing, are good examples as driftnet fishing is not widely practised in the Philippines.[92]

96. In the case of Poland, it is premature to estimate the influence of international treaties on trade as its participation in most treaties dates only to 1990. Nevertheless, it is possible that both the Montreal Protocol and the Climate Change Convention may have an impact on Poland's foreign trade, either through the increased cost of the technology that replaces ODSs, or because of the loss of export markets for fossil fuels, particularly coal.[53] Furthermore, the Basel Convention that controls the transboundary movement of hazardous wastes has major trade implications for Poland. On the one hand, it has resulted in a major reduction of imports of wastes, where some of them (e.g. scrap paper) are often used as inputs in production processes. On the other hand, the domestic industry using scrap metal may have benefited from export restrictions. Finally, Poland is losing out in economic terms from this treaty through the loss of transport business (Poland is a corridor for the shipment of materials from Russian Federation and Ukraine).

97. Zimbabwe derived some environmental benefits arising from the Bamako Convention, which restricts the import of wastes into Africa and controls the transboundary movement of wastes within Africa. On the other hand, the CITES appears to have been of doubtful environmental value to Zimbabwe. This is primarily because of the ban on trade in ivory, which hurts Zimbabwe, where elephants are not endangered and which could gain significantly from exporting ivory. In fact the revenues from such trade could provide much needed resources for managing elephant habitats. For Zimbabwe, this issue has been a major source of disagreement within CITES.[54]

C. Competitiveness effects

98. The competitiveness effects of MEAs are more difficult to estimate than the trade effects. As ODSs have to be substituted, competitiveness effects will depend on the price of the substitute and whether the countries themselves produce ODSs. For countries which import ODSs, these imports are likely to become more expensive as the production in OECD countries declines. Switching to substitutes may also be more expensive depending on their relative prices. For countries which produce ODSs, the replacement of the controlled substances may require a major change in the production process or the installation of a new technology, which may or may not be domestically available. However, except for firms which produce CFCs, entire recapitalization seems to be the exception (for example, refrigeration and air conditioning).

99. The competitiveness effects of the Montreal Protocol on the refrigeration and air conditioning industry have been examined in a study on India.[55] In tropical countries such as India, since food preservation and drug and pharmaceutical manufacture all use refrigeration, the use of CFCs assumes a critical role. More importantly, at the time of signing the Protocol many of the plants used for manufacturing CFCs were relatively new and had not completed their payback periods. Moreover, the use of CFCs is higher in life-supporting sectors such as drugs and pharmaceuticals, as compared to air conditioners. Thus, given the social importance of the sectors involved, the room for adjusting or cutting down on the use of CFCs is relatively limited.

100. The cost of compliance with the Montreal Protocol will be felt by several sectors of the Indian economy. The competitiveness effects are felt not only by the producers of controlled substances, but also by the manufacturers of products using such substances. Research and development costs will also increase, as well as the cost of products using refrigeration. An early phase-out strategy by 1999 would be less costly for India as the costs would be mostly borne by the producers of ODSs and not by the users, either directly (e.g refrigerators) or indirectly (e.g food). In the late phase-out by 2010, most of the cost would be borne by the users rather than producers. On balance, a late phase-out may be more expensive.

101. There are several estimates of the costs of adjusting to the requirements of the Montreal Protocol, both for an early and a late phase-out. The costs estimated by the World Bank were US$ 320m and US$ 482m, respectively. However,

a Task Force set up by the Indian Government has estimated that costs could be as high as US$ 1.4 billion and US$ 2.4 billion, respectively. This is at least four times the size of the entire Multilateral Fund under the Montreal Protocol.[56] However, it should be noted that alternative technologies and substitute chemicals are likely to be less expensive over time. This may not have been reflected in the estimates provided by the Task Force.

102. At the sectoral level, a study on India has estimated that the adjustment cost of adopting new technology is about 30-35 per cent of total costs for refrigerators and about 5-10 per cent for air conditioners. Some of the problems that producers face in adapting to the Montreal Protocol include the difficulties in obtaining information on new CFC-free technology available in OECD countries. The problem of obtaining the appropriate technology is further compounded by the fact that these technologies are rarely tested in tropical conditions, and thus although an early phase-out would be more desirable from an economic point of view, whether such a strategy will prove feasible is more doubtful. This depends on the research and development capacity in India itself, and on the feasibility of developing indigenous substitutes for CFCs.[57]

103. The effects in Thailand were felt in different ways by comparison to India where most effects were related to domestic factors. Thailand's consumption of ODSs is small in comparison with world standards, but it has been steadily increasing.[58] Most of the increase in the use of these substances has been attributed to a rapid expansion of Japanese, European and United States firms operating wholly-owned subsidiaries or joint ventures with Thai firms. At this rate, the study indicates that Thailand may exceed its Annex A Protocol limit by 2005. Exceeding this limit may disqualify Thailand from being a beneficiary from the Multilateral Fund. Delaying the phase-out of ODSs, as was shown in the case of India, would substantially increase the incremental costs of compliance and at the same time lose the prospect of concessional funding to help defray the costs.

104. This example shows that differential phase-out schedules and the corresponding trade restrictions imply that firms located in countries already bound by a phase-out schedule may be motivated to relocate to an Article 5 country, such as Thailand, which has virtually no restrictions on ODSs consumption until 1999.[59] This is evidenced by the fact that new importers, particularly small subsidiaries of multinationals, have entered the market in recent years and demand for CFCs has surged.[60]

105. It has been reported that the Thai Government has entered into an understanding with the United States Environmental Protection Agency (EPA) and the Japanese Ministry of International Trade and Industry (MITI) that encourages multinational companies to apply the same schedule for their phase-out as their domestic operations. It is to be noted that according to this study solvents constitute 40 per cent of Thailand's CFC uses, and that up to 97 per cent of the solvents are used by Japanese and United States companies, and joint ventures.

106. Moreover, the study on Thailand shows that research and development is concentrated in large firms, while there appears to be a tendency for the small firms to obtain interim chemicals rather than to change processes. An additional concern is how the Thai economy will eventually adjust to the requirements of the Protocol. Key sectors such as the electronics industry must consider the overall feasibility of such shifts, including the composition of foreign versus domestic investment or small scale versus large scale firms. Foreign and large firms tend to be better placed to benefit from the funds under the Protocol.

107. In Colombia, the direct effects are likely to be small, but the indirect effects of the Protocol may be felt more strongly. For example, the industries which may be severely affected are not those which produce ozone-depleting substances, but those which rely on CFCs for refrigeration, including flowers, bananas and meat processing. Theoretically, these industries have until the year 2006 to adjust, but imports of ODSs will decline by 1995, because of the shutdown of American and European plants. Thus, the price of ODSs is likely to increase

and so will the costs of refrigeration, perhaps leading to an increase in the price of fruit.[41] Of greater significance are the limits on methyl chloroform for fumigation of food exports. In other cases, the Colombian study states that the impact of the Montreal Protocol on international competitiveness is not clear. While some firms may not be able to afford the new technology, there are funds available from the Parties to the Protocol to assist in the transition.

108. In the case of Poland, there are also a number of regional treaties that will influence its structure of industrial and agricultural production and hence its foreign trade. The Convention for the Protection of the Marine Environment in the Baltic sea will result in increased fees for water intake and sewerage discharge, thus affecting the exports of goods such as artificial fibres, pulp and paper, coke, sulphuric acid etc. At the same time, Poland will have to import a large number of water recycling plants. With regard to transboundary air pollution, the so-called Black Triangle Agreement (between Poland, the former Czechoslovakia and Germany) has resulted in reduced sulphur emissions from power stations, the costs of which are reflected in higher prices and lower exports of electricity from Poland.

109. The Basel Convention may also have effects on competitiveness. For example, restrictions on trade in scrap have potential effects on the steel industry. For steel mills using scrap as a secondary raw material, restrictions on trade may increase costs. On the other hand, in countries which currently export scrap, using scrap instead of iron ore would require an across-the-board replacement of technologies.[42]

Conclusion

110. Trade flows have been affected by some MEAs, either directly or indirectly. The extent of trade and competitiveness effects pursuant to the signing of an MEA calls into question whether existing compensating measures, such as funding and technology transfer, are sufficient to ensure that the development process of poor countries is not impaired. More research is required to analyse and evaluate the trade and competitiveness effects of MEAs, particularly with regard to their effects on small firms. In addition, there may be a need to make interim evaluations of MEAs. There is a need to further examine such effects, particularly in negotiating future MEAs.

PART C: CONCLUSIONS AND RECOMMENDATIONS

111. The link between environmental policies and competitiveness is a complex one. Empirical analyses suggest that environmental standards and regulations in developed countries have not as yet had significant effects on competitiveness. They may, however, have a greater effect on the competitiveness of developing countries. For both groups of countries, the effects on competitiveness of similar environmental regulations or standards can be negative in the short run, but may be less significant, and can even be positive, in the long run. The ability of firms to absorb adverse competitiveness effects depends on factors such as the rate of growth and the openness of the economy, and on their capacity to generate innovative responses to environmental policies. In the case of developing countries, fostering a climate for innovation is easier if they have already embarked on a path of sustained growth.

112. While the impact of environmental policies on competitiveness depends on a variety of factors, Governments may nevertheless be faced with claims that environmental policies may worsen the competitiveness of domestic firms or industries compared to firms in countries where standards are lower or not enforced. Such claims have indeed led to calls by environmental groups and others for measures to "level the playing field". On the other hand, there are legitimate reasons for diversity in environmental regulations across countries. Moreover, such calls for levelling the playing field overlook the fact that, even if countries were to attain similar levels of environmental quality, the cost would vary from country to country. Thus "environmental" countervailing duties,

or similar measures, against products from a country with lower abatement costs may simply be protecting an inefficient industry. Such measures, moreover, would be inconsistent with the rules of the WTO.

113. Empirical analysis of the factors affecting the link between environmental policies and competitiveness also shows that the same measure may affect two countries differently and that the competitiveness effects of external environmental policies may be relatively more onerous than those of domestic policies. Generally speaking, considerations about competitiveness have not prevented the implementation of domestic environmental policies, partly because the latter can be tailored to accommodate domestic concerns and technology is generally available to address these problems.

114. Country studies undertaken under UNCTAD's technical cooperation programme on trade, environment and development reveal that the overall competitiveness effects of environmental policies, both domestic and external, depend on a number of factors such as the composition and destination of exports, the firm size, availability of raw materials, the growth and the openness of an economy and information and transaction costs arising from variations in environmental regulations across countries, industrial restructuring, and innovation. In the context of increased globalization and trade liberalization, openness was found to play an important role in the link between environmental policies and competitiveness. The more open the economy the better is its access to information, inputs and technology. Increased openness implies greater commercial and investment links with countries with stringent standards, leading to greater diffusion of environmental standards to developing countries. Openness may also involve increased competition in domestic markets and consequently encourage cost effective solutions to environmental problems. Import liberalization, moreover, which normally accompanies openness, may relieve some of the pressures on domestic resources, although there are some cases where negative environmental consequences have been reported. On the other hand, if environmental policies act in effect as non-tariff barriers to trade, then the net effect of increased openness on market access and competitiveness could be negative.

115. Another interesting point that emerged from the country case studies is the importance of firm size. The effects of environmental policies, particularly those of a developing country's trading partners, vary between large and small firms. Small firms are more likely to be adversely affected than large firms because of poorer access to information, raw materials, capital and technology. Moreover, the economic use of environmentally sound technologies may require a minimum scale of operation, often beyond that of small firms. This raises important policy questions: whether and how small firms could be provided with more assistance; whether environmental policies may lead to industrial restructuring, and whether that is socially desirable. It also suggests that special measures may be needed to promote innovation in small firms.

116. The report also shows that the competitiveness effects of environmental policies depend to a large extent on structural factors. In making environmental policies effective and in addressing their competitiveness effects, it would therefore seem necessary to give due attention to such factors, a number of which would go hand in hand with economic development. For example, in developing countries investments in sanitation, in the provision of clean water and in education are more likely to produce higher marginal returns for the environment than investments in reducing industrial emissions. Thus, insisting that specific process-related environmental standards be met by exports from developing countries might take more resources away from more pressing development needs with larger environmental returns both at the local and at the global level.

117. On MEAs, the tentative conclusion appears to be that international conventions may have significant effects on the trade and competitiveness of developing countries. Compensatory mechanisms, such as financial and technological transfers, are needed to induce compliance with the obligations undertaken by developing countries. These treaties are voluntarily entered into and it may be possible for groups of countries which are affected in a similar

fashion by these provisions to negotiate suitable terms. In any event, more research is required to establish what these trade impacts and competitiveness effects are before any negotiations are undertaken.

118. The discussion on eco-taxes and border tax adjustments and trade in domestically prohibited goods (DPGs) has highlighted the need for more empirical analysis. The use of economic instruments such as environmental taxes is likely to increase in the future, particularly in the OECD countries. More research is needed on their applicability in developing countries, as well as on the possible trade and competitiveness effects of border tax adjustments. On the issue of DPGs, additional research is needed at the country level to enable countries to make a cost benefit analysis of permitting the import of such goods. In this context, future case studies undertaken under UNCTAD's technical cooperation programmes could include both the issue of border tax adjustments and trade in DPGs.

119. Environmental policies may be insufficient to generate significant environmental protection in developing countries, unless they are accompanied by economic development. To promote environmental protection without affecting the growth prospects of developing countries requires both national and international initiatives. National policies should be directed at fostering a climate of innovation, openness and capacity building to promote the more effective implementation of domestic environmental policies. International initiatives should aim at mitigating adverse trade and competitiveness effects of environmental policies. Measures to promote better market access, information sharing, and increased access to knowledge, technology and finance should be encouraged at the international level.

120. International cooperation is also required to enable countries to move towards higher environmental standards. Export diversification of both products and markets may result in reduced dependence on a few products and in the export of higher value added products, thus making it easier to internalise environmental externalities. Cooperative efforts between importing and exporting countries should be encouraged, particularly with a view to diversifying exports from developing countries. Transparency, technical cooperation and better dissemination of information on standards and requirements at both the national and international levels will mitigate the cost of obtaining information, particularly for small firms. It will also facilitate the process of adaptation to national and international standards. Finally, more research is required to develop innovative funding mechanisms.

Notes

1. Report of the Ad Hoc Working Group on Trade, Environment and Development on its first session (TD/B(41(2)/5, TD/B/WG.6/3, Annex I). In accordance with its terms of reference the Working Group will "examine the effects of environmental policies, standards and regulations on market access and competitiveness, in particular of the developing countries, especially the least developed among them, and countries in transition, taking into account the financial and technological implications". It is to be noted that the Trade and Development Board, at the first part of its forty-first session examined "The impact of environment-related policies on export competitiveness and market access" (UNCTAD, "The impact of environment-related policies on export competitiveness and market access", TD/B/41(1)/4 and "Statistical and information Annex" TD/B/41(1)/4.Add.1).

2. See Decision of the Commission on Sustainable Development contained in its report on the second session, chapter 1, sub-section A.4 ("trade, environment, and sustainable development").

3. Consumption externalities primarily stem from the usage and disposal of products. Examples of regulations or standards used to address consumption externalities include those relating to the phosphate content of detergents, the use of lead-free petrol in cars etc. Production externalities stem from the process of production. Regulations and standards used to address them include emission limits, ambient standards, etc.

4. See Carbaugh, R., and D.Wassink, "Environmental Standards and International Competitiveness", in World Competition: Law and Economics Review.

5. See Porter, M.E., and Claas Van Der Linde, 1994, "Towards a New Conception of the Environment-Competitiveness Relationship".

6. Lipsey, R.G., 1994, "Sustainable Growth, Innovation, Competitiveness, and Foreign Trade", background paper for the Traditional Institute on Innovation, Competitiveness and Sustainability, Whisler, B.C., Canada.

7. Ibid.

8. So far most of the country case studies under the UNCTAD/UNDP project have not examined these issues. However, at a meeting of the steering group at which members of the WTO, UNEP and OECD secretariats were also present, it was felt that the country case studies should also look into issues such as the use of economic instruments and trade in domestically prohibited goods.

9. To quote Verbruggen "to gather information and to obtain cooperation instead of obstruction, the government has hardly any choice but to go for a consultation with the industry involved". See Verbruggen H., 1993, "The Trade Effects of Economic Instruments", Paper prepared for the OECD Environment Directorate/NACEPT Trade and Environment Committee, Informal Experts Workshop on Environmental Policies and Industry Competitiveness, 28-29 January, Paris.

10. The exact description of the item in the terms of reference of the working group is: "to identify and analyze emerging environmental policy instruments with a trade impact, bearing in mind the need for international cooperation towards ensuring transparency and coherence in making environmental and trade policies mutually supportive".

11. Hoerner, J.A., 1994, Tax Tools for Protecting the Atmosphere: The US Ozone-Depleting Chemicals Tax, A case study prepared for the International Institute for Sustainable Development, Winnipeg, Canada, June 1994.

12. The Uruguay Round has amended the Agreement on Subsidies which now states that taxes on "energy, fuels, and oil used in the production process and catalysts which are consumed in the course of their use to obtain exported products" can be adjusted at the border.

13. GATT Article III reads as follows: " The contracting parties recognize that internal taxes and other internal charges... should not be applied to imported or domestic products so as to afford protection to domestic production".

14. See Sorsa, P., 1995, Environmental Protectionism, North-South Trade, and the Uruguay Round, Paper prepared for the Symposium "The World Economy after the Uruguay Round with Some Implications for Austria", organized by the Research Institute for European Affairs, University of Economics and Business Administration, Vienna, November 3-4, 1994.

15. See Vincent, J,R., 1993, "Reducing Effluent While Raising Affluence: Water Pollution Abatement in Malaysia", Study prepared for the Harvard Institute for International Development.

16. Information on such products is contained in United Nations, Consolidated list of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments (Sales publication No. E.94.IV.3).

17. See, GATT secretariat's background report on Exports of Domestically Prohibited Goods for the sub-committee on Trade and Environment. PC/SCTE/W/7, 22 December 1994.

18. See, Hackmann, J., 1994, "International Trade in Waste Materials", in Review of International Trade and Development, November/December 1994; vol.29.

19. See Gaviria, D., R. Gomez, L. Ho, and A. Soto, 1994, Reconciliation of trade and environmental policies: the case study of Colombia, Study carried out under the joint UNCTAD/UNDP project on Reconciliation of environmental and trade policies.

20. PIC refers to the principle that international shipments of chemicals including pesticides that are banned or severely restricted in order to protect human health or the environment should only proceed with the explicit agreement of the national authority in the participating importing country. The PIC procedure includes certain pesticide formulations that are actively toxic. Until the time of drafting this report, 127 member countries had designated nations authorities to be responsible for the operation of PIC. Compilations of import decisions are forwarded to participating countries biannually. FAO and UNEP are preparing a draft legally binding instrument on the operation of the PIC in order to make the presently voluntary, non-binding PIC procedure more effective. The conclusion of a PIC Convention is envisaged for 1997.

21. In 1992, the European Community adopted Council Regulation EEC/2455/92, whereby exporters of chemicals which are banned or severely restricted in the EU must provide information to importing countries about these chemicals. In addition, it implements the UNEP/FAO international Prior Informed Consent scheme in the Community.

22. Markandya, A., 1994, "Reconciliation of Environmental and Trade Policies: Synthesis of Country Case Studies". UNCTAD, Geneva.

23. Chudnovsky,D., G. Lugones and M. Chidiak, 1995, Comercio Internacional y Medio Ambiente: el Caso Argentino, study prepared under the joint UNCTAD/UNEP project on Capacity-building on Trade and Environment. The study was also funded by project ARG/90/014, Ministerio de Relaciones Exteriores, Comercio Internacional y Culto.

24. De Motta Veiga, P., M. Reis Castilho and G. Ferraz Filho, 1994, Relationships between Trade and the Environment: the Brazilian Case, Study carried out under the joint UNCTAD/UNDP project on "Reconciliation of Environmental and Trade Policies".

25. Intal, P., E. Medalla, M. de Los Angeles, D. Israel, V. Pineda, P. Quintos and E. Tan, 1994, Trade and Environment Linkages: The Case of the Philippines, Study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

26. Fiedor, B., S. Czaja, A. Graczyk, and J. Rymarczyk, 1994,Linkages Between Environment and Trade: A Case Study of Poland, Study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

27. See De Motta Veiga, op. cit.

28. For shellfish the costs of an effluent treatment plant for the fish processing industry, introduced for domestic reasons, would have a very small cost (0.2 percent of turnover). Parikh J., V. Sharma, U. Ghosh and M. Panda, 1993, Trade and Environment Linkages: A Case Study of India. Study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

29. Aruoba C. et al., 1993, Impact of Environmental Regulations and Standards in European and North American Markets on Turkish Exports. Report 1: Environment-Trade Link. Second Draft; Report 2: Trade-Environment Link. First Draft, UNCTAD, Geneva. Study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

30. Poland may find its competitiveness being eroded because of its current inability to meet stricter standards if it is to become a member of the EU. The cost of meeting EU standards is considerable: according to one estimate it amounts to $30 billion.

31. Fiedor et al, op. cit.

32. Chudnovsky et al, op. cit.

33. Lu R., Y. Xia, J. Li, J. Zhang and Y. Lu (1993), A Study on Environmental and Foreign Trade Development in China. Draft study carried out under the joint UNCTAD/UNDP project on Reconciliation of environmental and trade policies.

34. Traditional exports representing 44 percent of total exports are oil, coffee, coal and ferro nickel. Nontraditional exports are fruits, flowers, fish, textiles, leather, chemicals and plastics, and resin.

35. De Motta Veiga et al, op. cit.

36. See TD/B/WG.6/5.

37. See Alleyne et al, op. cit.

38. See Bharucha, V., 1994, "Impact of Environmental Standards and Regulations on India's Exports", Report prepared for the Project RAS/92/034 on Institutional Capacities for Multilateral Trade.

39. See Bharucha, op.cit and De Motta Veiga, op.cit.

40. See TD/B/WG.6/5.

41. See Aruoba et al, op. cit.

42. See Chudnovsky et al, op. cit. and Parikh et al, op. cit.

43. See Faeth, P., 1995, Methods for Economic Analysis of Agricultural Sustainability, A paper sponsored by the United Nations Environmental Protection Programme and presented at the UNCTAD Expert Group Meeting on Internalization of Environmental Externalities, Geneva, 13-14 February 1995.

44. Alleyne, D., I. Boxill and A. Frances, 1995, "Environment and Trade: Case Study of Jamaica". Draft study carried out under the joint UNCTAD/UNDP project on Reconciliation of environmental and trade policies.

45. See TD/B/WG.6/5.

46. See Bharucha, op.cit.

47. Bharucha, op.cit.

48. Achanta A., P. Dadhich, P. Ghosh and L. Noronha, 1994, Requirements of Environmentally Sound Technologies (EST) to India for Compliance with Environmental Standards and Regulations in OECD Countries. Tata Energy Research Institute, Delhi, prepared for UNCTAD-TERI, New Delhi.

49. Aruoba et al, op. cit.

50. Lu R. et al, op.cit.

51. A number of developing countries listed under Article 5 of the Montreal Protocol qualify for technical and financial assistance.

52. Intal et al, op. cit.

53. Fiedor et al, op. cit.

54. Nkomo J., B. Zwizwai, and D. Gumbo, 1994, Trade and the Environment: Zimbabwe Case Study. Draft study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

55. See Bharucha, op.cit.

56. These figures may be revised downwards because of benefits arising from technological change and from innovation.

57. See Bharucha, op.cit.

58. In 1991, Thailand's per capita consumption of the controlled substances was as follows: Annex A 0.16 kg and Annex B 0.02 kg. These quantities are comfortably below the Protocol limits of O.3 kg and 0.2 kg respectively. Phantumvanit D., S. Wigzell, E. Natapon Buranakul, N. Boontherawara, and R. Bowonwiwat, 1994, The Interlinkages Between Trade and Environment: Thailand. Draft study carried out under the joint UNCTAD/UNDP project on Reconciliation of Environmental and Trade Policies.

59. Developing countries are eligible for assistance under the Financial Mechanism and are referred to as "Parties operating under paragraph 1 of Article 5".

60. Ibid.

61. Gaviria et al, op.cit.

62. De Motta Veiga, op. cit.